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Vols 44-45

ONTARIO HYDRO News

JANUARY, 1957—
December 1958

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POWER FROM MANITOU

ONTARIO HYDRO

News

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POWER COMMISSION OF ONTARIO
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JANUARY, 1957

VOLUME 44, NUMBER 1

FACING THE CHALLENGE

CANADIANS who had the opportunity of examining the year-end statements of the nation's leaders pertaining to the economic prospects for 1957 were undoubtedly encouraged to note a virtually unanimous spirit of optimism.

While many of these comments were necessarily tempered by pleas for the exercise of caution and good judgment in business affairs, there seemed to be general agreement that 1956 was a year of genuine progress in practically every field and that Canada, barring unforeseeable complications, might conceivably move forward into new areas of prosperity and expansion during 1957.

Certainly in the field of power development, Canada made many significant advances in the past 12 months. The annual review of hydro-electric progress for 1956, published by the Water Resources Branch of the Department of Northern Affairs and National Resources on January 2, 1957, emphasizes that construction of hydro-electric plants, in the past 12 months, was accelerated "to meet the increasing demands for electric power from commercial and domestic sources." While hydro-electric turbine capacity was increased by only 845,000 horsepower last year, the survey indicates that construction was very active on other projects that will augment Canada's hydro-electric resources by 1,500,000 hp. in 1957 and possibly another 2,500,000 hp. in 1958.

The installed turbine capacity of all hydraulic plants in Canada at the end of the year stood at 18,356,148 hp. Although this figure represents less than 28 per cent of Canada's known hydraulic resources, some provinces are being forced to seek other sources of power. It is evident that the building of new thermal-electric plants and extensions is proceeding vigorously. Ontario Hydro, for example, has authorized the installation of additional units at its Richard L. Hearn Generating Station in Toronto, which will raise the installed capacity of this large plant to 1,200,000 kw. (1,600,000 hp.) by 1960. At the same time, the Commission is participating in the construction of the 20,000-kw. Nuclear Power Demonstration plant—the first nuclear-electric station in Canada—and giving consideration to future thermal-electric stations.

The 1956 power summary also offers convincing proof that utilities were giving close attention to other phases of electrical power supply and distribution. The Commission, for example, increased its transmission facilities by adding 44 circuit miles of main transmission line for operation at 230,000 volts; 249 circuit miles at 115,000 volts, and 130 circuit miles at 13,000 to 44,000 volts. Distribution facilities were increased by the addition of 685 miles of rural distribution line.

A persual of the annual survey in its entirety illustrates the contribution of Canadian electric utilities to the present buoyant state of the nation's economy, and that they are alert to the challenge of increasing expansion.

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COVER SHOT

ON MARCH 29, 1956, the new Manitou Falls Generating Station on the English River was placed in service, marking a significant date in Ontario Hydro's Golden Jubilee calendar of events. Our cover photograph this month, depicting the new plant from the air, salutes the achievements of 1956 as recorded in the article, "New Power Era" commencing on page 2 of this issue.



Lo, what wonders the day hath brought,
Born of the soft and slumbrous snow!

—ELIZABETH AKERS ALLEN.

NEW POWER

ONTARIO HYDRO began its second half-century of service by moving confidently into the nuclear power age.

Actively participating in the construction of Canada's first nuclear-electric plant, Hydro further climaxed its Golden Jubilee celebrations by launching an impressive list of new projects.

This significant 12-month period witnessed satisfactory advances on all phases of the international St. Lawrence Power Project; accelerated progress in the building of new generating stations and associated facilities, as well as extensions to existing plants, and the completion of three-quarters of the frequency standardization program in southern Ontario.

The close relationship between the growth of Hydro and the industrial and economic expansion of the province is clearly indicated by figures on power demands. In 1910, when the Commission started to deliver power, it was called upon to meet demands totalling 4,000 kilowatts, as compared with 4,514,450 kw. at the end of 1956. A parallel increase is noted in Ontario's population and industrial figures. In the past half-century, the population has more than doubled —from over 2¼ million in 1906 to over 5¼ million today.

Primary power requirements for all systems reached 4,514,450 kw. in 1956 for an increase of 6.7 per cent over 1955. This absorbed the output of the additions to the Commission's power resources and the modest reserves on its systems for the past two years. This situation will be improved as resources at present under construction are placed in service during the present year. For the time being, it emphasizes the value of Ontario Hydro's interconnections with neighbouring states and provinces, making it possible, to some extent, to pool reserves of power.

Construction presently under way on nine separate projects, including new plants and additions to existing plants, will add over 2,000,000 kw. to present resources within the next four years.

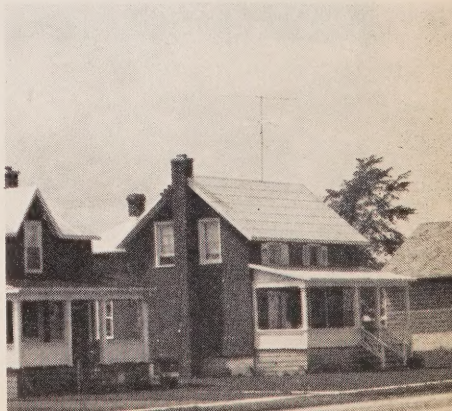
It is estimated that by 1980 power demands may be four to five times what they are today, which means resources totalling more than 20 million kw.

(Continued on page 5)



△

ONTARIO'S Prime Minister, Hon. L. M. Frost (left), and Rt. Hon. C. D. Howe, Canada's Minister of Trade and Commerce, hold the sods they turned to inaugurate construction of Canada's first nuclear-electric plant.



ERA

Ontario Hydro launched a long list of new projects in 1956 to celebrate its Golden Jubilee year



△ BY the end of December, 1956, a total of 405,000 cubic yards of concrete had been poured for the foundations of Ontario Hydro's powerhouse at the St. Lawrence project.



◁ COVERING an area of some 200 acres, New Iroquois is one of three new communities being established in the St. Lawrence Valley by Hydro. This new village has approximately five miles of well-planned streets.



REFLECTING increasing power demands, installation of four, 75,000-kilowatt units left), is underway at Hydro's Sir Adam Beck - Niagara Generating Station No. 2.

NINE gates of the Chippawa—Grass Island Pool control structure — an integral phase of the Niagara River remedial works program — were in operation by end of 1956.

UNIQUE in Canada, the pumping generating station — scheduled for service in 1957 — will add 170,000 kw. to the installed capacity of the Sir Adam Beck No. 2 project.





will be required, the major proportion of which will have to be provided from thermal sources.

In the light of these facts, the sod-turning ceremonies on September 19, 1956, to launch construction of Canada's first nuclear-electric plant on a site near the Commission's Des Joachims station on the Ottawa River, assume the highest significance. This 20,000-kw. station, which is being built by Atomic Energy of Canada Limited (a Federal Government agency), Ontario Hydro and Canadian General Electric Company, is known as Nuclear Power Demonstration or "NPD." It is expected that the operation of this plant will provide valuable information and experience for future development of electric power from nuclear sources on a much larger scale.

Further evidence of the active role which Hydro is playing in nuclear research was manifested by the announcement made by the Commission in October, 1956, that it would provide financial assistance to Hamilton College (McMaster University) for work associated with reactor installation, operation and studies. This college already has available a specialized staff and a valuable reservoir of scientific knowledge, relating to nuclear energy.

Under the terms approved, Ontario Hydro provided for a grant of $100,000 during 1956 and a further $100,000 in 1957. In addition, a sum of $5,000 per annum for a period of 10 years will be provided by the Commission to assist in the operating costs associated with the reactor. At the same time, Hydro also announced that it would appoint a competent engineer, who will be associated with the college in nuclear reactor studies.

St. Lawrence Reaches Half-Way Mark

In the field of hydro-electric operation, perhaps no single project has so captured the imagination as the St. Lawrence Power Development. Heralded for many years, the building of this project became a reality in the summer of 1954. A striking indication of public interest in this development was the fact that between January and December last year, some 340,000 persons took advantage of Ontario Hydro's guide services to view the progress of the work, upon which some 7,000 persons on both sides of the border are presently engaged. Among the many prominent visitors to the power project during 1956 were His Excellency the Governor-General of Canada, Rt. Hon. Vincent Massey, C.H., members of the Ontario Legislature, a delegation from the Toronto Board of Trade, and executive officers of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities.

A joint undertaking of Ontario Hydro, and its partner, the Power Authority of the State of New York, the 1,640,000-kilowatt St. Lawrence Power Project (of which Ontario Hydro's share is 820,000 kilowatts) consists of twin powerhouses — each of 16 units, stretching from the Canadian side to Barnhart Island on the American side — the Long Sault dam, the Iroquois dam and various dyking and channel improvement programs.

Both the Iroquois and Long Sault dams were half-completed. By the end of December last year, 405,000 of a total estimated 1,000,000 cubic yards of concrete had been poured into the construction of the Canadian powerhouse, which will be named the Robert H. Saunders-St. Lawrence Generating Station, in honor of a former Hydro Chairman.

An all-important aspect of the building of this development is the rehabilitation program being carried out by Ontario Hydro in communities where there are approximately 6,500 people who will be affected. During 1956, house-moving operations were virtually completed at Iroquois, the new site of which is about 1½ miles north of the present village. Water and light services were installed, sidewalks and roads were completed, and schools, churches and a modern shopping centre began to take shape. In all, the Commission moved 143 homes from the previous location to the new site. Only part of Morrisburg will be affected, and relocation work was progressing rapidly, while residents of six smaller communities in the St. Lawrence Power Project area were being established in two new towns. At New Town No. 1 (named Ingleside), sewers and watermains were completed, roads were being constructed and new foundations were laid in preparation for house-moving operations, which commenced in November. One hundred and six homes were moved to New Town No. 2 (known as Longue Sault) from existing small communities, virtually completing house-moving operations in this area.

(Continued on page 6)



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ENROUTE from Baden, Switzerland, to Ontario Hydro's Detweiler Transformer Station near Kitchener, Ont., this 95-ton stator (an integral unit of a 48,000-kva. hydrogen-cooled synchronous condenser) was transferred from an ocean freighter to a railway flat car by a 200-ton shear-leg crane at Sorel, Quebec. Regarded as the heaviest lifting gear of its type available in Canada, the crane effected the trans-shipment of the stator and an accompanying 60-ton encased rotor without incident.

In this case, also, sewers and watermains were completed, and work on the shopping centre and sewage treatment plant was progressing rapidly.

Progress at Niagara

In the Niagara area, already one of the world's greatest sources of hydro-electric power, the Commission was pressing on with the installation of four additional 75,000-kw. units at the Sir Adam Beck-Niagara Generating Station No. 2, where twelve units already were in service. The additional units are all scheduled to be in service by 1958, and, along with the 170,000-kw. pumping generating station, scheduled for service in 1957, will bring the installed capacity of this plant to its ultimate of 1,370,000 kw.

Unique in Canada, the pumping-generating station at Niagara is designed to pump water into a vast 650,000,000-cubic-foot capacity reservoir at periods of low demand, and to produce electric power from its reverse flow during the hours when the load on the Hydro system is heaviest. The six pump-turbine units will be converted from pump to turbine operation by simply throwing a switch.

Considerable headway was also made during the year on the remedial works program being undertaken jointly by Ontario Hydro and the Corps of Engineers, U.S. Army. This program is designed to preserve and enhance the beauty of Niagara Falls and, at the same time, assure the most effective use of the water for power production purposes. Five gates of the Chippawa-Grass Island Pool Control structure, located above the Falls, were completed last year, bringing to nine the number of gates now in operation. The entire remedial program will be completed in 1957, with the installation of four more gates in the control structure. All excavation and filling operations at the flanks of the Falls have been carried out.

News of still further expansion of Hydro's Southern Ontario System, serving the older and more densely populated areas of the province (roughly 30 per cent of Canada's total population), came during 1956 with the announcement that three, 200,000-kw. units would be added to the Richard L. Hearn Generating Station on Toronto's waterfront. Already this is the largest thermal-electric plant in Canada, and the additional units will bring its total capacity to 1 million kw. — considerably more than Ontario's share of the St. Lawrence Power Project. (During January this year the Commission also announced its decision to instal a fourth, 200,000-kw. unit at this plant).

At the same time, the Commission was considering the possibility of building a steam plant at Hamilton, where an investigation was being conducted to determine the economic feasibility of using a Commission-owned site at the waterfront.

While carrying out this tremendous program of expansion in southern Ontario, the Commission was going ahead rapidly with the building of new plants and additions to existing plants in northern Ontario, where demands for power are steadily mounting. In northwestern Ontario, which comprises more than half the province, and which was more or less an uncharted region of lakes and forest at the turn of the century, Hydro's power demands in 1955 were 329,800 kw. as compared with 217,400 kw. in 1954, an increase of 21.5 per cent. During 1956, demands increased by 8.2 per cent over the previous year.

This part of the province, from the standpoint of its potential development, is described as "the richest area in the world" in a brief which was presented to the Royal Commission on Canada's Economic Prospects by the Northwestern Ontario Development Association and the Associated Chambers of Commerce and Municipal Association last year. The brief directs attention to the fact that today there is a population of only 200,000 in this far flung area and predicts that, within the next 20 to 25 years, the population will more than double.

The accelerated industrial and economic development in northwestern Ontario, since the end of the Second World War, has brought a stepped-up program of power plant construction by the Commission. Along rivers that previously knew only the canoes of the trapper and the Indian, Hydro crews came to survey the wilderness, to learn where "white water" could be turned to "white coal." Roads were built by Ontario Hydro through hitherto untrod bushland. Over these roads came the construction equipment and the construction men of the public utility.



Four years ago, there was little but wilderness surrounding the cascades of Manitou Falls on the English River. Today, there is a 54,200-kw. station in operation there, and the installation of a fifth unit has been authorized that will give the station an eventual dependable peak capacity of 65,700 kw. Manitou Falls has the distinction of being the first Ontario Hydro radio-operated station, its remote control being located at one of the earlier Northwestern Division generating plants, the 16,400-kw. Ear Falls Station, 20 miles upstream.

New Power Plants

Even as this is written, a saga of 20th century pioneering is being chronicled along the remote Winnipeg and English Rivers of the burgeoning northwest. At Whitedog Falls on the Winnipeg, construction of a 54,000-kw. plant was under way in 1956, and is scheduled to come into initial service in December. 1957. The following year, the 67,500-kw. Caribou Falls Station on the English River is scheduled for first operation.

Extensions to the Alexander and Cameron Falls plants on the Nipigon River were authorized by Hydro in 1956. These additions will increase the resources of the Northwestern Division by 30,400 kw. by the summer of 1958. Looking even farther ahead, Hydro crews have test-bored the lakehead area for possible thermal-electric generating station sites.

Northwestern and Northeastern Ontario make up the territory served by the Commission's Northern Ontario Properties, which extend from Quebec to the Manitoba boundary. These Properties, for operational purposes, are organized into two Divisions — Northwestern and Northeastern. There is no interconnection between the two, but since 1950 there have been facilities for the interchange of power between the Northeastern Division and the Southern Ontario System. During 1956 there was no actual increase of generating resources within the Northeastern Division. Demands in 1956 were 7.4 per cent over 1955 requirements. A large part of this growth reflects the expansion of operations in the uranium fields of the area. These growing needs will be met by increased transfers of power from the Southern Ontario System and with this in mind, it was decided to build a 230,000-volt line between the Otto Holden Generating Station on the Ottawa River and the R. H. Martindale Transformer Station at Sudbury for service early in 1958. At the same time, to take care of additional loads in the Blind River area, a similar line is being built between the Martindale Transformer Station and Blind River Transformer Station. The line will operate initially at 115,000 volts but, ultimately, will be operated at 230,000 volts.

Another important and progressive step was taken in October, 1956, when arrangements were completed for the first exchange of power between the facilities of Ontario Hydro's Northwestern Division and the Manitoba Hydro-Electric Board. It is now possible for these two systems to exchange power, as and when required, and to co-operate in utilizing the flows of the Winnipeg and English Rivers to the best possible advantage. The interconnection was made through Ontario

(Continued on page 8)



HYDRO'S frequency standardization program made impressive strides in 1956. The shaded portions indicate the areas that will have been changed over up to February, 1957. Dates in the unshaded portions indicate the tentative schedules for the remaining 25-cycle areas of southern Ontario.

Hydro's new switching station at Kenora and involved the purchase by the Commission of a 32.6-mile Ontario section of transmission line from the Manitoba Hydro-Electric Board. The line extends from the Seven Sisters Generating Station in Manitoba, some 50 miles east of Winnipeg, to the Town of Kenora.

Frequency Standardization Going Ahead

During 1956, the 60-cycle frequency standardization program in southern Ontario advanced substantially. From October, 1949, when it was started, up to December 1, 1956, a total of 4,882,774 appliances had been changed from 25 to 60 cycles for 753,541 Hydro customers. It is estimated that 6,332,000 appliances, the property of 990,000 customers, will have been altered or exchanged by the time the southern Ontario changeover program has been completed in 1959. Plans for 60-cycle frequency standardization in Hydro's Northeastern Division were announced in September last year, surveys are now under way, and it is expected that the first cut-over to 60 cycles in this area will be made in the spring of 1958.

Since its inception, Ontario Hydro has been engaged in a continuing program designed to bring the benefits of electric power to all rural areas of the province. Preliminary figures indicate that 685 miles of distribution line were added to the rural system by the end of 1956, while the net increase in rural customers is expected to total approximately 12,220. Ontario Hydro is now serving a total of some 431,000 rural customers over more than 44,000 miles of rural distribution line. Today more than 87 per cent of Ontario farms are supplied with electricity.

On November 1, James S. Duncan, C.M.G., well-known Canadian businessman and former President and Chairman of the Board of Massey-Harris-Ferguson Limited, became Chairman of the Commission, succeeding Dr. Richard L. Hearn, who has retired from that office, but who remains as a consultant. At the same time, W. Ross Strike, Q.C., a member of the Commission for the past 13 years, was appointed First Vice-Chairman, and the Hon. Ray Connell, M.P.P. for Hamilton-Wentworth and Minister Without Portfolio, Second Vice-Chairman. Hon. W. K. Warrender, former Vice-Chairman of Ontario Hydro, is now the Minister of Municipal Affairs. D. P. Cliff, Secretary-Treasurer of the Ontario Municipal Electric Association, was also appointed to the Commission to serve as a Commissioner along with Lt.-Col. A. A. Kennedy, who continues in that capacity.

Thus did Ontario Hydro write finis to its first 50 years and enter a new power era. ■

HYDRO NIGHT

Aurora Board of Trade and Hydro-Electric Commission sponsor Golden Jubilee celebration



DONALD GLASS, Chairman, Aurora Hydro-Electric Commission, and President of the Board of Trade (second from left), thanks J. A. Blay, Hydro's Director of Information, who was guest speaker at the jointly-sponsored Golden Jubilee dinner. Looking on are Col. F. J. Picking, Publisher, Aurora Banner (left), and C. C. Copland, Manager and Secretary, Aurora Hydro.

In the years ahead, Ontario Hydro will recall its 50th Anniversary with pride, for 1956 was a year made memorable by the many and varied demonstrations of good will by municipalities, institutions and individuals across the province. As the Golden Jubilee Year neared its close another fine tribute was extended, this one in the form of a testimonial dinner tendered jointly by the Aurora Board of Trade and the Aurora Hydro-Electric Commission. Earlier in the day, December 4, more than 900 Aurora school children witnessed the première of Hydro's historic film "A Gift Of Nature," which dramatically portrays the influence of hydro-electric power on the economic development of Ontario.

Guest speaker at the dinner was J. A. Blay, Hydro's Director of Information, who related what he called "one of the most outstanding success stories of the last half-century—the story of Ontario Hydro." The speaker dealt chiefly with the broad, historical aspects of the Commission's expanding operations, prefacing his review with a description of the events leading to the formation of the Commission "when men first began to realize that the power of falling water could be turned into electric power." He stressed the careful planning that preceded the expansion program, involving painstaking analysis of future power demands.

Mr. Blay had special words of praise for Hydro commissioners and board of trade organizations in Ontario. "We sometimes tend to forget the very great contribution being made by more than 1,000 municipal utility commissioners, who represent the ultimate link in providing electric power to meet the needs of communities such as Aurora." Explaining that Ontario's lack of large coal deposits had seriously hampered industrial growth at the turn of the century, the speaker said "among the first groups to express concern and to take action were the boards of trades of the province. This interest goes back to the days before Hydro was formed, and has continued ever since." He cited the example of the council of the Toronto Board of Trade which, in 1900, had investigated the possibility of bringing electricity from Niagara.

Golden Jubilee Film

At the conclusion of his address Mr. Blay introduced Hydro's 28-minute sound and color film, "A Gift of Nature," outlining the highlights of its first 50 years of service. "After seeing the film," he said, "I am sure you will agree with me that it gives every citizen of our province reason to be proud of the accomplishments of their own great electrical utility."

The guest speaker was introduced by Don Hamilton, Aurora Commissioner, and the vote of thanks was extended by Larry Rubin, incoming President of the Aurora Board of Trade. Guests were welcomed by Don Glass, Chairman, Aurora Hydro and President of the Board of Trade; Dr. E. J. Henderson, Mayor of Aurora, and George Fish, Program Chairman. Words of appreciation were expressed by Major Lex McKenzie, M.P.P., York North; D. P. Cliff, Ontario Hydro Commissioner and Secretary-Treasurer, O.M.E.A.; Adam Smith, Manager, Hydro's Toronto Region, and Bert Merson, President, District 4, O.M.E.A., and Chairman, Toronto Electric Commissioners.

Entertainment was provided by the well-known barbershop quartette The Rhythmaires, and the event concluded with community singing under the baton of A. "Scotty" Hamilton, Forest Hill Village, President, Toronto Region, A.M.E.U. ■

PATHWAYS TO POWER

CHAPTER VIII

DISTRIBUTION

by R.E. Jones*



SPANNING open stretches of water and heavily-wooded country, this rural Hydro distribution line serves rural and summer cottage customers in the Georgian Bay Region.

In the process of supplying power to customers there are a number of important links. Distribution is one of them. Distribution may be described as that part of the whole system whereby power is taken from a generating station or a substation, and delivered to the individual customers at a voltage generally below 15,000.

Distribution may be divided into two general types — urban and rural. In the former, the area is heavily populated and a few poles suffice to serve many customers; in the latter, the customers are widely-scattered and the number of poles required to supply a customer is comparatively high.

There are a few fundamental differences in the design of the two types of systems. In the urban area the poles must be spaced closely so that service wires can be run to adjacent buildings and the secondary conductors may be erected on the poles. In rural areas, the poles are widely-spaced to reduce cost, and there is usually no secondary.

Voltages

There are two voltage levels in a distribution system — (a) the primary or high voltage, and (b) the secondary or low voltage used to supply lighting and small power customers. Large blocks of power may be supplied at primary voltage.

In urban areas the primary voltage is commonly 4,160, with voltage to grounded neutral of 2,400. The use of 8,320/4,800 volts and 12,500/7,200 in urban areas is growing.

For rural circuits, 8,320/4,800 and 12,500/7,200 volts are commonly used, with an increasing use of 25,000/14,400 volts for long lines.

As the drop in voltage in a line varies inversely to the square of the voltage, there is advantage in using one of the higher voltages. Controlling factors are the voltage of the existing system and the cost of

*(Mr. Jones was Distribution Engineer, Ontario Hydro, until his retirement on October 31, 1956.)

equipment, which rises slowly up to 15,000 volts (to ground). Also, lines up to 4,160/2,400 volts may be safely operated with rubber gloves.

Secondary voltages are generally three wire, 120/240 single-phase for lighting, with 240 and 600 volts three-phase for power. In some places, 480 volts is used for power. In downtown networks, 120/208 volts, three-phase is used for lighting and power.

In recent years there has been a limited demand for 240/416, or some similar voltage, but so far the disadvantages of this voltage appear to outweigh the advantages.

To better visualize a distribution system, which usually covers a large area, we will follow the necessary steps in building such a system.

Planning

The starting point is a map with the customers indicated on it, together with data on expected power loads.

A probable route for the line is selected in the office. The size of conductors and location of transformers are specified. Provision is made for future loading. If conductors are too small, there will be low voltage complaints; if they are unnecessarily large, the cost will make the line uneconomical.

At this point it will be determined whether the construction will be overhead or underground.

Location

The first thing to be done on arriving in the area is to determine whether the poles would be wholly or only partly on the road allowance, or entirely on private property.

In favor of remaining on the roadway are ease of serving customers on both sides of the road, accessibility for construction and maintenance, and availability as supports for street lighting luminaires.

On the road allowance, the poles may be anywhere between the fence

(Continued on page 12)



△ RESIDENTIAL distribution poles, carrying both Hydro and telephone circuits, are located on the rear lot line in this subdivision.



◁ SAVINGS in rural line construction costs are effected by spacing poles up to 300 feet apart, and by using the poles jointly with telephone companies.



◁ CROSS-COUNTRY rural distribution lines avoid the high cost of tree-trimming, both initially and for routine maintenance.

and the curb, depending on local conditions and such obstructions as trees. Lines off the roadway are free from trees and the hazard of vehicle impact.

It is frequently economical to use the poles jointly with communication circuits. The elimination of one line of poles on a street is also an advantage from an esthetic viewpoint.

Supports

The pole to support overhead conductors is usually of wood — cedar or pine. Concrete and steel are also used for ornamental installations, but the first cost, as well as that of erection, is considerably higher than for wood. Also, there is value in the insulating properties of wood. With proper preservative treatment a wood pole will probably last 35 years.

A TYPICAL farm distribution pole, showing the transformer located at the load centre — equidistant between the barn and farmhouse. ▽



Line poles have a minimum height of 30 feet and often are longer to keep the conductors at the required height above ground and above other wires of lower voltage. Also, poles must have sufficient strength to withstand the load imposed on them by anticipated loads of ice and wind.

Poles are spaced according to local conditions. In an urban area where conductors are heavy and customers are 50 feet or so apart, a span of 125 feet is common; in rural districts where conductors are light and customers far apart, a spacing of 300 feet permits a considerable saving in cost.

At all points of unbalanced strain, a guy must be installed. This may be attached to a buried anchor or to another pole. The common use of a guy is at a dead-end or at an angle in the line.

Crossarms and Hardware

Where there is only one primary conductor on the pole, a top pin is used. Besides being lower in cost than a crossarm, it enhances the appearance of the pole.

If there are two or more primary conductors a crossarm is used. It is usually of fir, with pins of locust wood or steel with a lead insulator thread.

Secondary conductors are usually erected on a vertical rack of steel and porcelain installed two feet below the crossarm or top pin.

All hardware is galvanized to prevent rusting. The latter can be a serious problem in a corrosive atmosphere.

Insulators and Conductors

The insulators supporting line conductors are generally of porcelain, with some of glass. For safety, the conductors on a crossarm are generally on insulators of distinctive colors for different voltages. In Ontario, brown glaze is used for primary conductors and slate color for grounded neutral.

Conductors having both strength and good conductivity are copper and aluminum. Both are used in line work. The strength of the stranded aluminum is greatly increased by the inclusion of a steel core.

Secondary conductors usually have a weatherproof covering of braid or plastic, but the grounded neutral is often left bare. Primary conductors up to 4,000 volts in spans up to 150 feet are commonly covered in urban systems; elsewhere, they are bare.

The conductors between the line pole and the customer's building are known as the service, which consists of 2 or 3 conductors, two at least being covered.

An important feature in the erection of conductors is the sag. Sag varies with temperature and with wind or ice loading. If there is too much sag, the conductors may swing together, and there may not be enough clearance from ground or other conductors; if there is not enough sag there is too great a strain on the supports, particularly in cold weather when the conductors contract. At taps from conductors, some form of clamping device is used.

Transformers

To change from the primary voltage to the secondary utilization voltage, oil-insulated self-cooled transformers are used. They are made in various sizes from 3 to 200 kva. Transformers up to 100 kva. may be mounted on a pole, but usually all those over 50 kva. are erected on an elevated platform between poles, known as a "structure."

A fuse, either on the crossarm or contained in the transformer, is used to disconnect a defective transformer from the primary line. Standard practice is to install an arrester at each transformer for protection from lightning. In Ontario, the cases of all transformers are grounded as a safety measure.

Grounding — All neutral conductors are solidly grounded to the pub-



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A HEAVY coating of ice on the bank of transformers (left) and the fallen top cross-arm (right) indicate the damage that wind and ice storms inflict on electrical distribution systems.

lic water main, or, if outside a water area, to one or more driven ground rods. This grounding limits the voltage which can enter a customer's premises under faulty conditions.

Metering — To measure the power taken by a customer a watt-hour meter is installed at each service. It may be inside the building or on the outside of the wall.

The meter is merely a motor whose speed is proportional to the amount of power passing through it at that moment. Indicating dials are driven by a chain of gears giving a measurement of the power used, and this is a convenient means of billing the customer.

For large loads there are demand meters, which indicate the maximum demand in any 20-minute period. This information is required in billing for such loads.

Street Lighting

Formerly there were two distinct types of street lighting — regular and ornamental. The former used a radial wave reflector and bracket mounted on a wooden pole; the latter consisted of an iron standard with a large luminaire on top and usually underground supply. Now the two types seem to have merged with the use of directional glassware for smaller units and concrete poles.

In Ontario, most street lighting is of the so-called "multiple" type, whereby the lights are fed from the 120-volt house lighting circuits using a control wire and some form of device to turn them on and off, such as a time switch, or a photronic controller, which is operated by the amount of daylight existing at the time.

"Series" circuits use a high voltage line from a substation or other source, with all the lamps in series.

Underground

The placing of supply conductors underground was started in the early days of the power industry to relieve the heavily-loaded pole lines in downtown areas.

There are many arguments for and against underground construction as compared with overhead lines. Underground construction is free from storm damage, vehicle impact, rotting of poles, and enables a utility to keep a street free of many heavily-loaded poles.

On the other hand, certain expenditures must be made at the time of installation on the basis of the ultimate load on the circuit. Compared with overhead construction, it is much more costly to change the size or number of conductors or the voltage. The construction is more costly, and when trouble does occur it is much more difficult to locate and to repair. Also, it is usually impossible to eliminate all poles as some form of support is required for street lighting.

Originally, cables were pulled into buried tubes of wood or tile, and later of impregnated wood fibre. Latterly there has been a move to a greater use of cables buried directly in the ground.

Cables are generally of copper, although there is the possibility of considerable future use of aluminum when suitable jointing procedure has been developed.

Insulations are of various types:

Rubber, which is the oldest type now used, has been improved over the years. It is satisfactory for voltages up to 3,000 to ground without shielding.

Paper, which consists of an oil-impregnated paper tape wound spirally around the conductor, is still the most popular for primary voltages. A watertight outer covering is essential as a very small amount of moisture will render the paper useless as an insulator.

Some plastics have been used for cable insulation, but each type has its own particular application.

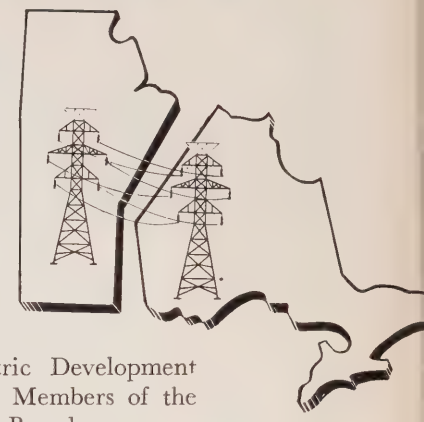
For cables which may be subjected to high heat, such as in a network system under fault conditions, woven asbestos has been used. While it will readily absorb water, it is not harmed by high temperature and does not give off toxic fumes when heated.

Overhead Cables

A type of construction sometimes used in congested areas, particularly in heavy trees, is overhead cable. It has some of the characteristics of both overhead and underground.

It has neat appearance, avoids troubles from trees, and will often operate after poles have fallen. The pole spacing is normally limited to about 150 feet, and its cost is considerably higher than for open wires, but still a lot under the cost of a buried system. ■

VIA CIRCUIT SK 1



Interconnection with Ontario Hydro's Northwestern Division is one of several progressive steps taken by The Manitoba Hydro-Electric Board since its formation some seven years ago

Parallel between The Manitoba Hydro-Electric Board and Ontario Hydro was made at 19.16, via circuit SK 1 (Seven Sisters G.S. — Kenora S.S.).

THAT terse announcement in Hydro's Operations Division Daily Summary late in 1956, modestly proclaimed the actual forging of a new electrical link with a sister province.

For seven years engineers of both utilities had studied the problem of making this tie-in between Manitoba and Hydro's Northwestern Division. Then on August 23, last year, Ontario's Prime Minister, the Hon. Leslie M. Frost announced the completion of the agreement, which took effect on October 1, 1956.

Actually implemented on October 28, of course, the agreement provided, among other things, that the Manitoba utility would sell to the Commission a 32.6-mile Ontario section of an existing transmission line. Between Seven Sisters Generating Station in Manitoba (some 50 miles east of Winnipeg) and the Town of Kenora. Hydro built a new section of line from Dryden to Kenora where it was linked with the line taken over from Manitoba at the recently-completed Kenora Switching Station. These facilities now permit power interchanges between Ontario's entire Northwestern Division (extending westerly from the Nipigon area to the interprovincial boundary) and the interconnected systems of the Manitoba Board and the City of Winnipeg Hydro Electric System.

System Safeguard

Acting as a safeguard to the electrical systems of both provinces, particularly in times of emergency, the power exchange arrangement also offers the additional benefit of allowing each system to make the maximum use of flows available in the English and Winnipeg River watersheds.

For Hydro, the interconnection marks another step in a long-term plan of integrating its electrical networks with those of neighboring provincial and U.S. utilities that began back in 1928, when Hydro first began to purchase power on contract from the Gatineau Power Company in Quebec. Since that time the scope of this grid has been broadened by the establishment of interconnecting links with Hydro Quebec, MacLaren Quebec Power Company, the Niagara Mohawk Power Corporation in New York State and Michigan's Detroit Edison Company.

Young Organization

The latest power exchange agreement places Hydro in partnership with a comparatively young organization, but one that has made impressive strides since its formation more than seven years ago.

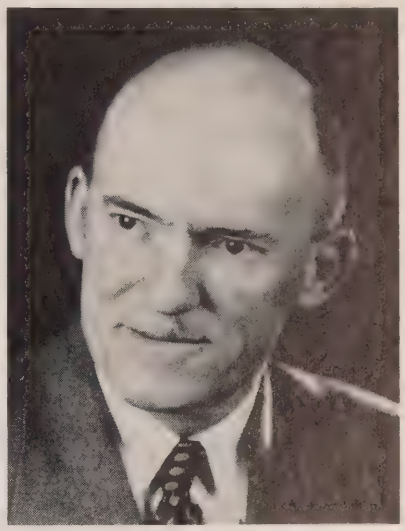
On April 22, 1949, The Manitoba Hydro-Electric Board was established under The Manitoba Hydro-Electric Development Act. Members of the first Board were appointed on May 18, 1951, with Dr. D. M. Stephens as Chairman and General Manager. Named as members of the Board were W. D. Fallis, J. W. Sanger, D. A. Thompson, Q.C., and A. H. Watson.

The Board has been very active since that time. It has constructed two hydro-electric generating stations on the Winnipeg River, one at Pine Falls and the other at McArthur Falls, with capacities of 85,000 kilowatts and 60,000 kilowatts respectively. It is constructing a thermal-electric station at Brandon, with a capacity of 120,000 kw., and a second thermal-electric station is on the drawing-boards for Selkirk, with an ultimate capacity of 260,000 kw.

In 1953, the Board acquired the common shares of the Winnipeg Electric Company, and assumed active management of that company's two generating stations, also located on the Winnipeg River — at Great Falls and Seven Sisters Falls — with respective capacities of 125,000 kw. and 149,000 kw. The acquisition also included the distribution system of Winnipeg Electric Company in and around the City of Winnipeg. To provide for the continuance of a supply of power adequate to the needs of the province, and to promote economy and efficiency in the generation and supply of power, the Board amalgamated its staff with that of the company.



SEVEN SISTERS Generating Station on the Winnipeg River is a vital point in the system interconnection established between Manitoba and Ontario Hydro's Northwestern Division.



DR. D. M. STEPHENS

Chairman and General Manager of the Manitoba Hydro-Electric Board.

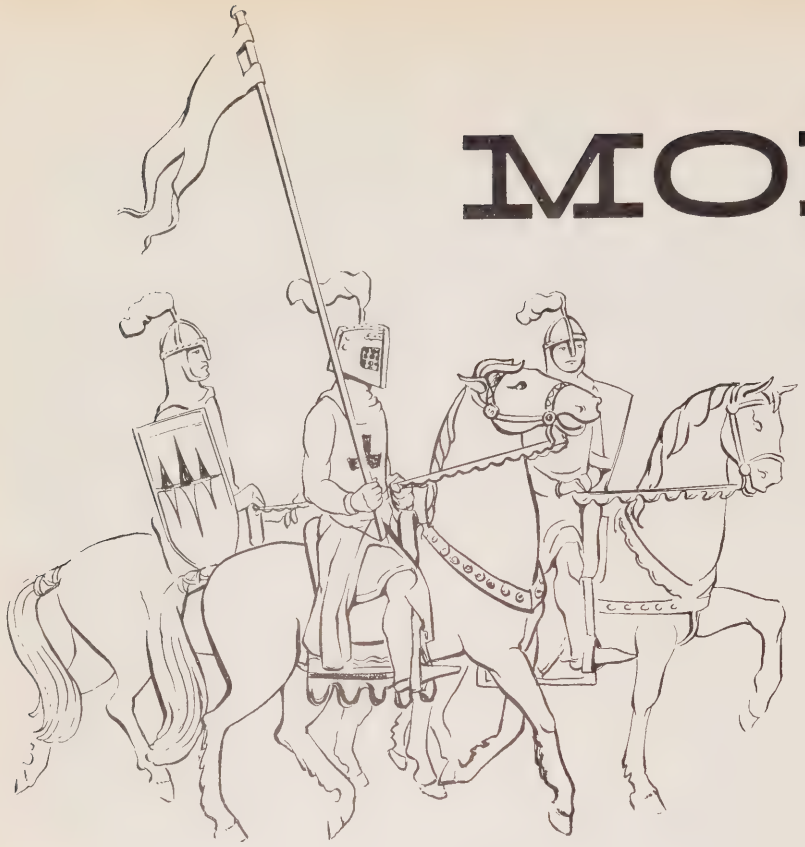
In 1955 the Board negotiated the sale of the Winnipeg Electric Company's distribution assets within the boundaries of Manitoba's capital to the City of Winnipeg Hydro Electric System, and the company's distribution facilities outside the city to The Manitoba Power Commission.

Presently, the Board has only six customers, including the City of Winnipeg Hydro Electric System, The Manitoba Power Commission (which together serve a total of more than 330,000 customers), Manitoba Paper Company Limited, The San Antonio Gold Mines Limited, The Lithium Corporation of Canada Limited, and The Ontario-Minnesota Pulp and Paper Company Limited. Recently the Board announced that it would make an immediate start on the construction of a new hydro-electric generating station on the Nelson River approximately 400 miles north of Winnipeg. Plans call for the supply of more than 100,000 kw. from this development to be delivered to The International Nickel Company of Canada, Limited, at the site of its new Moak Lake and Mystery Lake projects. First power deliveries are scheduled for the summer of 1960.

The officers of the Board, in addition to the General Manager, Dr. Stephens, are: Comptroller and Treasurer — D. P. Martell; Executive Assistant to the General Manager and Secretary — Geo. Reid; Assistant to the General Manager, Planning — L. M. Hovey; Manager, Engineering and Construction Division — J. R. Rettie, and Manager, Operating Division — C. P. Haltalin. ■

POWER distribution in Manitoba's capital is administered by the City of Winnipeg Hydro-Electric System, one of six major customers of the Board.





MODERN

Round Table group visits Iroquois and Cornwall in a "search for a state of well-being" in Canada

With the Canadian economy humming the tune of rapid industrialization, an assembly of modern "Knights of the Round Table" has pledged its quest to a search for the "state of well-being."

The "Knights," a group of business, labor, government, educational and professional leaders from across Canada, has undertaken on behalf of the University of Toronto School of Social Work to do the preliminary investigation, and to follow up at yearly intervals, in a three-year study of the effects of industrial development on the people of Canada. On the basis of this reconnaissance, the Round Table expects to launch a co-ordinated series of research projects into the impact of industry on man.

The challenge, presented by the subject "The impact on human well-being of a rapidly evolving industrialization," is one likely to have caused good King Arthur's mythical Knights of the Round Table to have "mounted their chargers and galloped off in all directions." For the task is that of trying to identify the myriad social and cultural problems which man faces as a result of industrialization — a challenge far and beyond the simple accomplishments of a medieval knight.

This progressive research program is an all-Canadian venture with the overall cost of $100,000 for the three years being contributed by participating organizations, among them Ontario Hydro, and individuals. The idea for a unique mobile round table was conceived by Professor Charles E. Hendry, director of the School of Social Work at the University of Toronto.

Professor Hendry described his idea to Crawford Gordon, Jr., President and General Manager of A. V. Roe of Canada Limited. Mr. Gordon, thoroughly interested, agreed to act as chairman of the study group. Professor Hendry became executive director of the project, and Dr. George M. Hougham, another member of the staff of the university's School of Social Work, was brought in as research director.

The Round Table study was launched in Toronto in October, 1956, when six groups of about 15 investigators each left on two-day visits to the six "areas of impact" chosen for the survey. The areas selected: Iroquois Falls, Ontario; the Elliott Lake uranium development near Blind River; Malton; Scarborough; a redevelopment area in downtown Toronto, and the Cornwall district — site of Ontario Hydro's St. Lawrence Power Project.

Assisting Study

One member of the advisory committee established to help frame the program is Dr. Richard L. Hearn, who, as Chairman of Hydro until his retirement in October last year, foresaw the overwhelming need for such a study. The Commission subsequently assisted the Cornwall investigators by helping to arrange a tour program, and by offering the use of its many facilities in the power project construction area.

KNIGHTS

by GARY SMITH

The report of each group's findings is expected to prove valuable in focusing the attention of the round table's researchers on subjects of acute interest in the study areas. While no public report is planned on the early findings, it is interesting to note that the members who visited Cornwall found strong evidence among the residents, both of the city and the surrounding Counties of Stormont, Dundas and Glengarry, of an "eagerness to test the future."

The City of Cornwall is actively promoting industrialization within the boundaries of the 29 square miles it recently annexed from Cornwall Township. In the smaller communities there is an expectation that industry will seek them out, and that the additional assessment will provide a strong base for growing development and prosperity.

Keynote Address

Sir Geoffrey Vickers, V.C., distinguished British soldier, lawyer and statesman, set the theme for this unique undertaking when he gave what might be called the keynote address to the Round Table members prior to the first phase of the field study.

"Industrial development has shown itself everywhere to be a vastly de-stabilizing force. Each phase sets running a sequence of changes, which tend either to prove self-defeating or to create conditions, which men find intolerable; and the situation which emerges from the resultant crisis has so far proved no more stable than its predecessor.

"Industrialization tends to make a progressive impact on four areas of great importance to human well-being. It changes and restricts our living space; it divorces our social from our economic life; it changes our aspirations and especially our concepts of status and success, and it erodes the structure of expectations, which underlies both our sense of security and our power of foresight.

" . . . To suppose that our new power must necessarily destroy us would be, I think, as mistaken as was our grandfathers' naive belief that it must necessarily bring us blessing. What it does, is to present us with new choices, and often with choices, which we have neither experience nor machinery for making.

"The history of past decades in all countries where industrialization has been moving ahead, whatever their political system, has been an exercise in devising devices for saying 'no' to trends that threatened

(Continued on page 18)

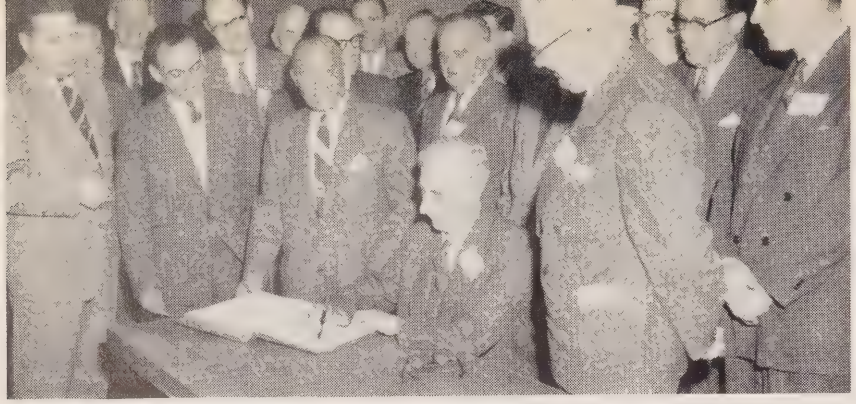


SIR GEOFFREY VICKERS, V.C.

Who gave the keynote address to members of the Round Table group prior to the first phase of the unique, three-year undertaking.



THE OLD and the new lie side by side in this aerial view of Iroquois. Well-planned streets and spacious lawns mark the site of the new community (foreground), one of the centres of study for the Round Table group. A section of the Iroquois dam is visible on the U.S. shore of the St. Lawrence River.



IT'S not a "round table" but it served the purpose as the modern "knights" gathered with city officials to sign Cornwall's Golden Book. Grouped left to right around the table as Dr. J. Henry Richardson adds his signature are: J. M. Coldwell, Jean P. Geoffroy, Cornwall's Mayor (at that time) Aaron Horovitz, and D. D. Morris. Included also are: William G. Coventry, Industrial Commissioner for Cornwall; Dr. J. D. M. Griffin, St. Clair Balfour, Jr., Dr. John Moore, Jack Stevenson, George S. Mooney, William G. Smith, B. E. Mercer, and R. O. Hunter.

human values, individual or social; and from this exercise there is emerging a clearer view both of the values, which are worth protecting, and of the methods of protection, which are not themselves self-defeating."

George S. Mooney, Executive Director of the Canadian Federation of Mayors and Municipalities and Economic Advisor to the City of Montreal, led the party of 13 which left, following Sir Geoffrey's address, for the Cornwall area where work is proceeding on Ontario Hydro's St. Lawrence Power Project.

As with observers visiting the other five areas of impact, the Cornwall group was given a written brief on the subject area. This profile, discussing the social, cultural and economic characteristics of the United Counties of Stormont, Dundas and Glengarry, was prepared specially for the Round Table by M. T. O'Brien, Executive Director of the Children's Aid Society of Cornwall.

Arriving in Cornwall, the visitors were greeted by Hydro officials and conducted on a four-hour tour of Cornwall, the rehabilitation area and the power project construction sites.

With this briefing, the members of the group settled down in the afternoon to an informal discussion with civic government, industrial and community leaders. On the following day, the group journeyed to Iroquois to talk with Reeve Lloyd Davis and members of his council, and visit homes newly moved to the site of the new village.

Fertile Area

It was here that the visitors probably found one of the most fertile areas for their survey. For Ontario Hydro is now in the process of relocating the Village of Iroquois, part of the Town of Morrisburg and six communities in Osnabruck and Cornwall Townships. The original sites of these communities, as many readers are aware, will be affected in harnessing of the St. Lawrence River's gigantic power potential.

When the Round Table members visited Iroquois, house-moving machines had already completed the task of transporting all movable homes to the new townsite. In several such homes, newly transplanted to lots already green with new grass, the visitors met and talked with village housewives.

Here, as well as in Cornwall, the group found evidence of an optimism about the future. Reeve Davis, for instance, told the interviewers he saw no reason why the villagers should expect an increase in their tax rate. "After all, we are getting new schools, streets, sewers and water works without having to shoulder a debenture debt." (Hydro is providing these services under the terms of the rehabilitation agreement.)



As was mentioned earlier, a full report on the Round Table's findings cannot be compiled immediately. Each study group must visit its "area of study" at least once more during the next two years. In the meantime, a research staff will go to work sorting into research projects the mounds of information accumulated by the observers in the process of conducting their first investigation.

The ultimate findings of the Round Table will be awaited anxiously by Canadians, for such information should be of inestimable value in plotting the future growth, not only of those areas being studied in Ontario, but of the whole country. On such studies as this may depend, to a great extent, Canada's ability to erect and maintain for her people "the conditions of well-being" in the years ahead.

Sir Geoffrey, speaking to the departing members of the study, said Canada still was in the rare position of being able to choose what turn its future progress will take. He added:

"There are three strands in the idea of progress: betterment, which is its objective and its criterion; expansion, which is its servant; and balance which is its condition. This is clear enough today; but you, more perhaps than any other nation have the initiative to act upon it . . . few if any countries have such rich and undeveloped resources." ■

Optimistic Note

Ontario Hydro resources sufficient to meet increasing demands, A. W. Manby tells O.M.E.A. district delegates

DESPITE the fact that 1956 demands on the Ontario Hydro systems were running well ahead of the electrical requirements of 1955, power cuts were not anticipated during the coming months.

This assurance from A. W. Manby, Hydro's General Manager, was typical of the note of optimism evident in his address at the recent annual meeting of O.M.E.A. District 4 in Toronto on November 29 last year. Dealing with power resources and demands during his fact-filled review of the Commission's 1956 operations, Mr. Manby intimated that it might be necessary, at times, to curtail power supplied to certain industrial customers on an "interruptible" basis.

The speaker emphasized the fact that the average annual increase in power consumption over the past five years had been about 8 per cent a year — approximately 2 per cent more than the long-term average annual increase of 6 per cent. At this rate, the resources available from the St. Lawrence development would be fully utilized within two years after it began producing power.

Good Water Conditions

Excellent water conditions in southern Ontario during 1956 had assisted the Commission in meeting demands, while interconnections with neighboring United States utilities had been important factors in coping with higher power requirements, and also in providing additional revenue, Mr. Manby stated.

"Through our interconnection with Niagara Mohawk Power Corporation, we have been able to help this utility meet a power emergency arising from the destruction of one of its hydro-electric plants." This assistance was a temporary measure, however, and could be suspended in the event that the power was required in Ontario.

While the Commission's power resources would total approximately 4,500,000 kw. for 1956, the "tremendous" increases in power demands were reducing the margin of reserve generating capacity.

"Thus it has been necessary to revise our plans in order to make adequate provision for the next five years," Mr. Manby continued.

In addition to the work on the St. Lawrence project, Hydro had stepped up the tempo of its expansion program by authorizing the installation of three, 200,000-kw. units at the Richard L. Hearn thermal-electric station in Toronto. The decision to proceed with the installation of four additional units at the Sir Adam Beck-Niagara Generating Station No. 2 would provide an additional 300,000 kw. while 170,000 kw. would be available from the pumped-storage phase of this project.

(Continued on page 20)



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THREE delegates (left to right), John Irvine, Etobicoke Township; Norman Maughan, East York Township, and Charles Hopkins, Hydro's Toronto Region, enjoy an anecdote by A. O. Leslie, Scarborough Township.



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REGISTERING for the well-attended annual meeting were (left to right): W. R. Harmer, Ontario Hydro; W. J. Fisher and E. E. Laing, New Toronto, and Charles S. Phelps, Sarnia.



◁ G. D. PATTINSON, Toronto Township (left), emphasizes a point during a discussion on municipal elections with G. W. Leaver, Trafalgar Township representative.

J. G. BALDWIN, Lindsay, President, Eastern Ontario M.E.A. (left), extends congratulations to D. P. Cliff, O.M.E.A. Secretary-Treasurer, on his appointment as an Ontario Hydro Commissioner. ▷



Preliminary engineering investigation for a proposed new thermal-electric plant at Hamilton was also under way, Hydro's General Manager reported.

Dealing briefly with expansion in northern Ontario, Mr. Manby stated that power demands were growing rapidly owing to new developments in the mining and pulp and paper industries. The speaker outlined the steps being taken to augment power resources in that area, mentioning specifically the new interconnection between the Commission's Northwestern Division and The Manitoba Hydro-Electric Board.

In his summary of power development, the speaker declared that "we are fast approaching the day when we must look to thermal sources—either nuclear, coal or oil — for additional power. We are hopeful that nuclear-electric power will be economical for base load operation by 1965."

Rural Expansion

Turning to other phases of Commission operations, including expansion of its rural system, Mr. Manby also reported on the satisfactory status of the frequency standardization work in southern Ontario.

"We expect that the Toronto changeover will be finished by August or September 1959."

Mr. Manby's address followed a brief speech of welcome by President Bert Merson, Chairman, Toronto Electric Commissioners, who, in greeting the 160 delegates in attendance, pointed out that the area embraced by O.M.E.A. District 4 was the most densely populated in the entire province.

"The municipal power load in our district constitutes approximately 41 per cent of Ontario Hydro's municipal load and is continuing to grow."

It was gratifying to realize that Ontario Hydro was taking steps to assure power supply "for a long time ahead." This should allay any fears of lack of power and inspire municipal commissioners to meet competition "no matter what its source."

While the relationship between the O.M.E.A. and Ontario Hydro was never at a higher level than at present, association members must study the effect of the Ontario Commission's policies on the Hydro system in general and the municipal systems in particular, "and voice our opinions on such matters by having them presented to the Commission through our parent body."

Mr. Merson paid tribute to the memory of W. P. Dale, Brampton, a former District 4 President, and M. A. Gough, East York Township, a former auditor. "Their passing leaves a great gap in our ranks."

During the general business session, Secretary-Treasurer D. G. Moffitt reported a surplus of approximately $1,523 on the year's activities. The membership report disclosed an equally healthy situation with 29 out of a possible 32



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RE-ELECTED to the executive for another term were (seated, left to right): D. G. Moffitt, Toronto, Secretary-Treasurer; Dr. V. S. Wilson, Etobicoke Township; Bert Merson, Toronto, President; A. H. Waites, Mimico, and J. A. Orr, North York Township; (standing) C. J. Ellerbeck, East York Township, W. E. Wright, Toronto Township. Named a director, J. T. Armstrong, Georgetown, was unable to be present.

municipalities being active members of the association.

Provoking considerable discussion before receiving approval was a motion submitted by the Resolutions Committee urging that "whereas there has been no concentrated effort by The Hydro-Electric Power Commission for many years to sell electrical energy, be it resolved that we ask the Ontario Municipal Electric Association to request The Hydro-Electric Power Commission to inaugurate a campaign to advise the public on the many uses of electric energy."

Speaking to the motion, President Merson declared that "this is not a criticism of Hydro. There have been good reasons why Hydro has not advertised, but that time has now passed."

Ontario Hydro had come to the position where it was impossible to say that nothing could hurt it.

"As Hydro commissioners we cannot stand idly by and see this great enterprise threatened."

In supporting the motion, Mr. Merson declared that a house could operate entirely on electric power, "but there are many things you cannot do with other forms of energy — including gas."

Opposing the resolution, Norman Maughan, East York Township, said that it was not necessary for Hydro to "sell power," as the margin between generating capacity and actual requirements was very narrow.

"I feel that manufacturers of electrical appliances are doing sufficient advertising without the Commission entering the field."

Approve Scholarship

Delegates also favored another resolution recommending that a committee be established "to study the feasibility of providing a bursary or scholarship in Electrical Engineering at the University of Toronto at a cost not to exceed $300 per annum. This bursary to take effect in 1957."

John McMechan, Toronto, as Chairman of the Nominating Committee, comprising: Norman Maughan, East York; G. D. Pattison, Toronto Township, and D. G. Moffitt, Toronto, moved that the 1956 Executive Committee be returned to office for another term. Unanimously endorsed for re-election were: President, Bert Merson, Toronto; Past President, W. E. Wright, Toronto Township; Dr. V. S. Wilson, 1st Vice-President, Etobicoke Township; A. H. Waites, Mimico, 2nd Vice-President; C. J. Ellerbeck, East York Township; J. A. Orr, North York Township, and J. T. Armstrong, Georgetown, were re-elected Directors. D. G. Moffitt, Toronto was re-appointed as Secretary-Treasurer while Bruce Wallace, East York Township and S. J. Pollock, Toronto Township, were appointed as Auditors.

Brief addresses were also given by E. A. Washburn, A.M.E.U. President and D. P. Cliff, Secretary-Treasurer, O.M.E.A. and newly-appointed Ontario Hydro Commissioner.

(Continued on page 25)

Ontario Hydro Opens New
Northeastern Region Headquarters

A STAR IN THE NORTH

A LATE autumn sun beamed its unqualified approval on November 14 as Ontario Hydro marked the official opening of the ultra-modern headquarters building of the Northeastern Region in the bustling City of North Bay.

An admiring audience, including government, civic and industrial, as well as municipal and Ontario Hydro representatives, watched while the Commission's First Vice-Chairman, W. Ross Strike, Q.C., cut the red ribbon to declare the handsome, two-storey brick structure officially open.

This ceremony marked an important climax in the comparatively short history of the Northeastern Region, which embraces a large section of northern Ontario lying north of a line extending roughly from Mattawa on the east to a point near Sault Ste. Marie to the west. Handling Hydro services in this productive segment of Ontario, which is noted for the fact that several important uranium, gold and nickel mines lie within its boundaries, the Northeastern Region was formed in 1947. A few months later, the first offices were established in leased quarters at 405 Main Street West, North Bay.

Imposing Landmark

Reflecting the growth of electrical loads and resources in the region since that time, the new building, with its blended red brick and stone construction, is an imposing landmark on the North Bay cut-off of the Trans-Canada Highway at 590 Shaw St. It has an overall floor space of 33,000 square feet, counting its ground floor and two upper floors, and is similar in design to the new West Central Region headquarters opened at Hamilton in May, 1956.

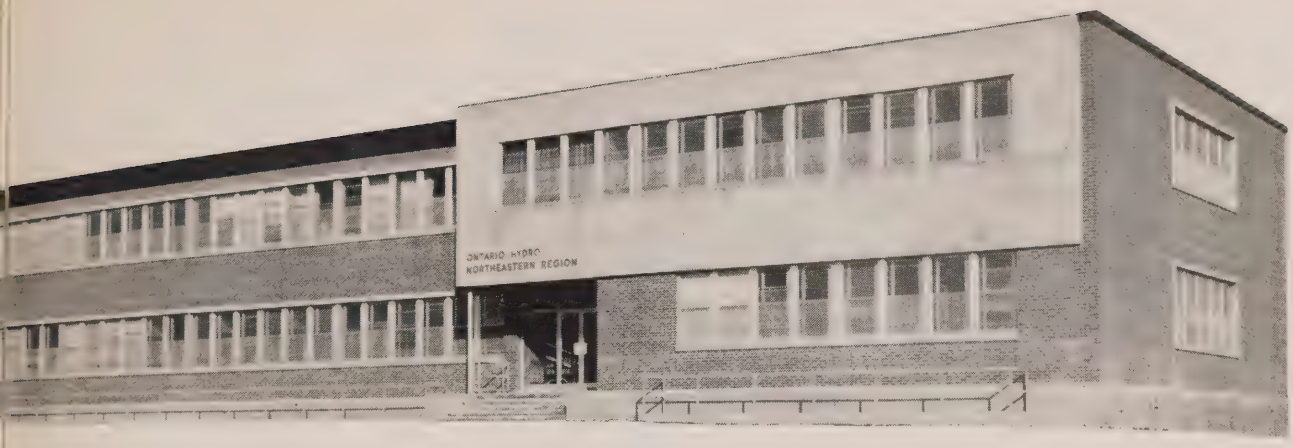
Features include large double-glazed windows for maximum lighting and insulation; attractive, functional tiled floors, and a flexible arrangement which, by means of movable partitions, permits the alteration of office accommodation as required.

On the main floor, the entrance foyer provides convenient access to the offices of the North Bay Rural Operating Area. The regional personnel staff and the general accounting office are also located on this floor, while space for the assembly hall, employees' cafeteria, kitchen and storage rooms is provided on the ground floor. Engineering offices are placed judiciously throughout the building.

On the second floor, the office of



△ W. ROSS STRIKE, Hydro's First Vice-Chairman, cuts the ribbon to declare the new building officially open. Witnessing the ceremony were John Chaput, M.P.P. Nipissing (left), and A. W. Manby, General Manager.



TASTEFULLY combining red brick and stone in its exterior construction, the new headquarters building of the Northeastern Region is regarded as a handsome addition to North Bay's rapidly-developing northern outskirts.



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OFFICIAL opening of the building represented a successful culmination of several months of co-ordinated planning for, left to right: Manager H. R. Graham, Northeastern Region; V. R. Evans, representing the contractors, K. H. Candy, Commission Architect.

the Regional Manager is connected with an attractive visitors' reception room, as well as a boardroom, tastefully embodying a Scandinavian motif, and centred by a conference table of oiled teak. In addition, the Operations, Distribution, Consumer Service and Property Departments are accommodated on this floor.

Prior to the official opening ceremonies in the attractive ground floor assembly room, guests were met in the main foyer by Regional Manager H. R. Graham, Mr. Strike and other senior Ontario Hydro officials, including Lt.-Col. A. A. Kennedy, Commissioner and President of the Georgian Bay District M.E.A.; D. P. Cliff, Commissioner and O.M.E.A. Secretary-Treasurer; A. W. Manby, General Manager, and J. M. Hambley, Assistant General Manager — Administration.

As the visitors assembled in the lobby, they were arranged in groups and taken on a tour of the building. Ladies of the regional staff conducted each group through the various offices and eventually to the assembly room.

Regional History

Here, on a dais flanked by sprays of colorful autumn flowers, Mr. Graham introduced the platform guests and outlined the history of the Northeastern Region. Mr. Graham said that the region embraced an area of some 100,000 square miles. The regional organization was designed to bring the Commission closer to the people it served, he said.

Mr. Strike, introduced by Mr. Graham, said the rapid increase in consumption of electricity in the region during the past 10 years gave evidence of tremendous development over the same period. The Northeastern Region's primary power requirements in 1947 were 181,000 kilowatts, and within eight years this figure had grown by 103 per cent to 366,500 kw. in 1955.

"It is estimated that primary power requirements of the region will total 565,000 kw. by 1960," Mr. Strike said. He pointed out that an "electric triangle," comprising Abitibi Canyon Generating Station to the north, Otto Holden G.S. on the east and George W. Rayner G.S. to the west, assured the area of a steady supply of power. Transmission lines interconnecting the Northeastern Division with the Southern Ontario System provided against a possible power shortage in case of low water, Mr. Strike said.

Mineral Deposits

Rich mineral deposits in the

(Continued on page 24)



STORES accounting employees are shown at work in their bright new office on the main floor of the two-storey regional building. △

▽ MEMBERS of the survey staff, left to right: Glen Swanson, Eugene Jawtuchowicz, Eric Lackstrom, Jim Bowen and Uno Kingissep were feeling very much "at home" in their new quarters.



Northeastern Region meant that Hydro must plan for increased power requirements in the future, the speaker continued. "In this region you now have 11 mines devoted exclusively to uranium, the least of which is larger than any other uranium mine in the western world, and there are indications that all the uranium in the area has not yet been discovered," he added.

Flash-bulbs popped and a television camera "whirred" as Hydro's First Vice-Chairman stepped forward to cut the slender red ribbon to the accompaniment of applause from the audience of more than 200 persons.

Following the official ribbon-cutting, Rev. Howard H. Eaton, President of the North Bay Ministerial Association, dedicated the building.

Brief congratulatory addresses were also given by John Chaput, M.P.P. Nipissing, Mr. Cliff and Mr. Manby. Col. Kennedy brought greetings from the O.M.E.A., and B. M. Graham, Manager, North Bay Hydro-Electric Commission extended best wishes on behalf of the A.M.E.U. Deputy-Mayor F. D. Wallace extended civic greetings to Ontario Hydro, congratulating the Commission on the choice of North Bay as the headquarters of the Northeastern Region. Representing the Sudbury area was Rheal Belisle (M.P.P.-Nickel Belt), while J. R. Garland (M.P.-Nipissing) was present on behalf of the Canadian Government.

Bringing the ceremony to a conclusion, Mr. Graham said it was appropriate that the new building had been opened during Hydro's Golden Jubilee year. "Hydro still follows in the footsteps of its founders who dreamed of the day when there would be abundant power for all," he said. The serving of refreshments concluded this memorable event.

—by Gary Smith.

OPTIMISTIC NOTE

(Continued from page 21)

Speaking in the first capacity, Mr. Cliff brought greetings on behalf of O.M.E.A. President Gordon H. Fuller, who was unable to be present, and reported that membership in the parent association now totalled 300.

Referring to his recent appointment, Mr. Cliff said it represented a tribute to the O.M.E.A. as a whole, manifesting the desire of the Ontario Government to have the O.M.E.A. assume an even greater role in "guiding the affairs of our great provincial electrical utility."

Climaxing the business session was a panel discussion on the role of local utilities in promoting adequate wiring. Members of the panel, including Harry Foy, Manager, Electric Service League of Ontario; Roland De Mers, Past President, Electrical Contractors Association of Ontario; Frank Wilkinson, Business Manager, London P.U.C., and J. T. Barnes, Sarnia, President, O.M.E.A. District 8, were introduced by W. Ross Strike, First Vice - Chairman, Ontario Hydro, who filled the role of panel chairman. Mr. Strike said that lack of co-operation on the part of some municipal utilities was regarded as a "bottleneck" in promoting adequate wiring.

Mentioning that Ontario Hydro contributed $30,000 annually to the League on behalf of the municipalities, Mr. Strike stressed that co-operation and participation in implementing the League's objectives were of paramount importance.

In his summary, Mr. Barnes said that the 60-amp. service did not provide sufficient capacity for the average electrical customer and even the 100-amp. Red Seal standard was not sufficient in some cases.

Discussing the main advantages of an adequate wiring program, apart from safety and increased consumption, Mr. Wilkinson stressed that such a program tended to reduce service costs by decreasing the number of fuse replacement calls, voltage complaints and other related service calls.

Mr. De Mers said that the Electrical Contractors Association estimated that wiring to ensure "the present and reasonable future adequacy" of a new home would cost approximately 3½ per cent of the total selling price.

Mr. Foy outlined the various ways in which the Electric Service League could assist a local utility in promoting adequate wiring.

Among the chief figures at the banquet, tendered by the Toronto Electric Commissioners, James S. Duncan, Ontario Hydro Chairman, was given a standing ovation as he rose to make his first address to an O.M.E.A. gathering in his new capacity.

Introduced by John McMechan, Vice - Chairman, Toronto Hydro, Mr. Duncan said he had accepted his new appointment with humility but confidence.

"I am looking forward to the great challenge of serving the province and to the opportunity of meeting the men and women who are efficiently administering Hydro affairs in their communities."

Brief addresses were also given by: W. Ross Strike, Lt.-Col. A. A. Kennedy, D. P. Cliff, Mayor Charles Hiscocks, Leaside, A. W. Manby, E. A. Washburn and A. H. Waites.

Concluding the banquet program, Gordon Willows, Special Assistant to the Chief Engineer, Ontario Hydro, presented an illustrated address, which graphically depicted the scope and progress of the St. Lawrence Power Project. ■

Appoint R. A. Coleman To Seaway Committee

Robert A. Coleman, Manager and Secretary of the Port Hope Hydro-Electric Commission, has been appointed to represent the commission on a local committee, which will consider the effect of the St. Lawrence Seaway development on Port Hope.

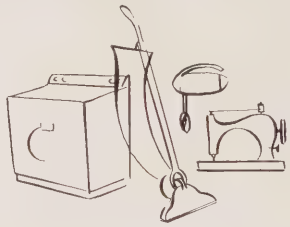


DISTRICT REEVES MEET HYDRO CHAIRMAN

JAMES S. Duncan, Ontario Hydro's new Chairman, took time during a two-day trip to the St. Lawrence Valley to meet with district reeves. Pictured here, left to right: Reeve Orval Seeley, Matilda Township; Mr. Duncan; Reeve George Beavers, Morrisburg, and Reeve Donald Kyle, Williamsburg Township.

MINIATURE MACHINE SHOPS

Credit purchases of electrical appliances increase domestic power consumption, District 7 O.M.E.A. delegates told



DOMESTIC power consumption is being stimulated by credit purchases of electrical equipment, and Ontario utilities must be prepared to meet rapid growth in the next decade.

This warning was sounded by Harry Hyde, Assistant Chief Engineer, Toronto Hydro-Elctric System, who addressed delegates at the recent annual meeting of District 7 O.M.E.A.

Meeting at London, delegates welcomed Hon. Ray Connell, newly-appointed Second Vice-Chairman, Ontario Hydro, and D. P. Cliff, O.M.E.A. Secretary-Treasurer, who had recently been named an Ontario Hydro Commissioner.

During his thought-provoking address, Mr. Hyde declared that modern homes, with their increasing numbers of new electrical appliances, were coming to resemble small machine-shops.

"Television sets, clothes dryers, refrigerators, freezers, air conditioners, washing machines and other types of equipment are being purchased by all householders able to meet the carrying charges, and as a result electrical loads are growing by leaps and bounds."

Load growth was not confined to expanding cities or municipalities, the speaker stated, pointing out that the standard of living in the smaller communities was on a scale comparable to that of the larger centres.

"Growth and expansion are symbols of the times," Mr. Hyde continued, "but it must be planned growth or chaos will be the result."

Higher Voltages

Higher utilization voltages would be necessary in the future, the Toronto engineer indicated. He suggested that electrical equipment manufacturers be urged to produce appliances that could be easily reconnected after a higher voltage had been introduced.

Utilities should also consider the question of increasing voltages in their distribution networks from 4000 to 13,000 volts.

During the general business session, President J. Stuart Killingsworth extended congratulations to E. V. Buchanan, retired General Manager, London P.U.C., who recently was the recipient of the Julian C. Smith award from the Engineering Institute of Canada. V. A. McKillop, present General Manager of London P.U.C., was congratulated on his recent election to the E.I.C. presidency.

Discussing the re-organization of Ontario Hydro, W. Ross Strike, First Vice-Chairman, said that the operations of the provincial utility were demanding the increasing attention of members of the Commission.

"Under the present arrangements," Mr. Strike said, "Mr. Duncan, the new Chairman, Mr. Connell and I will deal with day-to-day matters. Three non-executive members, two of whom have already been appointed, will deal jointly with us on matters of policy."

Short addresses by Mr. Connell and Mr. Cliff were followed by a greeting to delegates from Dr. Richard L. Hearn, former Hydro Chairman, who paid tribute to the co-operation he had received from the O.M.E.A. during his tenure of office.

Turning to the question of obtaining power from nuclear sources, Dr. Hearn said that Ontario Hydro was participating with Atomic Energy of Canada Limited in feasibility studies of a nuclear reactor with a capacity of approximately 100,000 kilowatts.

London P.U.C. Film

An interesting highlight of the



◁ HARRY HYDE, Assistant Chief Engineer, Toronto Hydro, discussed load growth problems created by increasing purchases of domestic electrical appliances.

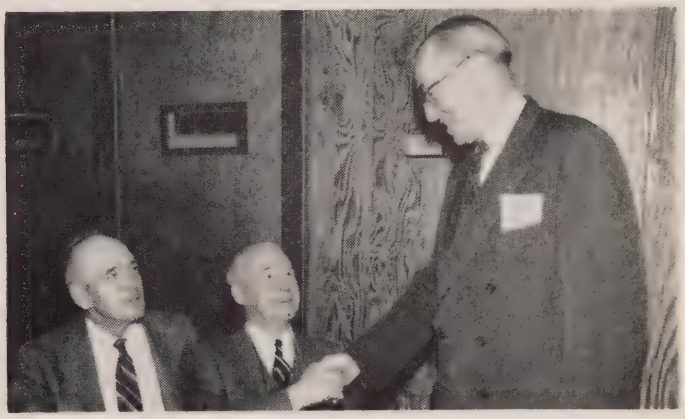


△ RETIRING President J. Stuart Killingsworth, London (second from right), exchanges greetings with three Ontario Hydro representatives, Lt.-Col. A. A. Kennedy, Commissioner, and Hon. Ray Connell, Second Vice-Chairman (on the left), and Commissioner D. P. Cliff (extreme right).

meeting was the presentation of a film produced by London P.U.C. Depicting the varied phases of utility operations, the film portrayed the beneficial effects of such modern mechanical equipment as ditch-diggers, well-boring machines and other devices in meeting construction schedules. The color movie also indicated the achievements of London P.U.C. in administering the city parks system.

Percy R. Locke, St. Thomas, Chairman of The Municipal Hydro-Electric Pension and Insurance Committee, discussed the benefits of the dual plan. He reported that many utility employees were now making additional contributions to obtain larger pensions at retirement age.

Climaxing the meeting, delegates approved the report of the Nominating Committee endorsing the election of the following executive for 1957: H. R. Henderson, Woodstock, President; J. S. Killingsworth, London, Past President; P. R. Locke, St. Thomas, 1st Vice-President; George E. Brown, Aylmer, 2nd Vice-President; Directors — Murray Logan, Thorndale, and Campbell Calder, London. C. E. Kirkby, Woodstock, was named Secretary-Treasurer.—*by Frank C. Wood.*

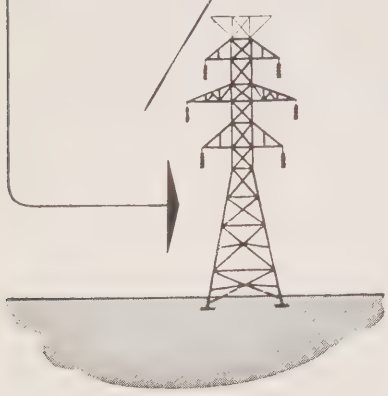


△ W. A. ALLAN, St. Thomas and Dr. Richard L. Hearn, former Ontario Hydro Chairman (left) congratulate V. A. McKillop, London (right), on his election as President of the Engineering Institute of Canada.



△ MEMBERS of the 1957 executive — seated left to right: J. S. Killings worth, London, and H. R. Henderson, Woodstock, President; standing Campbell Calder, London; P. R. Locke, St. Thomas; C. E. Kirkby, Woodstock, Secretary-Treasurer; G. E. Brown, Aylmer, Murray Logan, Thorndale.

ALONG HYDRO LINES



E. V. Buchanan Awarded Julian C. Smith Medal

E. V. Buchanan, General Manager of London Public Utilities Commission until his retirement in 1951, is to receive the Julian C. Smith Medal for "achievement in the development of Canada." The medal is to be presented at the annual meeting of the Engineering Institute of Canada at Banff in June, 1957.

Mr. Buchanan, a native of Scotland who came to Canada in 1910, was associated with the London P.U.C. for 41 years, and until recently was Managing Director of Isotopes Products, Limited, Oakville, Ontario.

Mount Forest Sets Commission Salaries

Salaries of $150.00 a year, have been approved for members of Mount Forest Public Utilities Commission by the local municipal council.

GOLDEN JUBILEE CONTEST

CREATING widespread interest in Ontario Hydro's Golden Jubilee celebrations, pupils of 45 public schools in Toronto Township and the Village of Port Credit recently participated in a public speaking contest sponsored by Toronto Township Hydro-Electric Commission in co-operation with the Port Credit Public Utilities Commission. The prize-winners were rewarded with trips to Ontario Hydro's Niagara and St. Lawrence Projects.

Contestants, representing Grades 7-10 in their respective schools presented a prepared speech — 5 to 7 minutes in length — on some phase of Hydro activity, followed by an extemporaneous speech of approximately two minutes on a Hydro subject selected by the judges. School winners, with their teachers, were guests of Ontario Hydro on a tour of the Sir Adam Beck-Niagara Generating Stations.

An elimination contest on the same basis was then held to determine the ultimate winners, who, with their teachers, members of the sponsoring commissions and school authorities toured the St. Lawrence Power Project a few weeks later. These final winners were: Lynn Deyman, St. Mary's School, Grades 7-8; Evelyn Sisler, Port Credit High School, Grades 9-10; Carol Moffatt, Lynwood School, Grades 7-8, and John Zeagman, Our Lady of the Airways Senior School, Grades 9-10.

The oratorical contest created great interest in Hydro throughout the district, and its results are reflected in a letter to R. H. Starr, Manager of the Toronto Township Commission from J. Donald Ferguson, a teacher in Cooksville Public School. Wrote Mr. Ferguson:

"I would like to take this opportunity of congratulating your commission on the event of the 50th Anniversary. I would also like to thank you for the very enjoyable tour provided to the winners of the public speaking contests and their teachers. I feel that sponsoring such contests and providing educational tours for public speaking pupils is an excellent way for you to celebrate an anniversary. I am also certain that this type of publicity is very beneficial to Ontario Hydro in general. It is my hope that opportunities will present themselves in the future to continue the good work you have so well begun." ■

St. Catharines Builds Underground Network

First section of a new underground network system at St. Catharines was put into operation recently, when the new cable was officially "cut in" by P.U.C. Chairman R. Douglas Hunter and Commissioners F. R. Cavers and George Laughlin, with St. Catharines P.U.C. Manager Ray Pfaff, directing operations. The 15,000-volt underground system will eventually eliminate all overhead wiring in the downtown area.

Honor Trenton Hydro Employee

William Brown, who recently concluded 38 years' service with the Trenton Public Utilities Commission, was honored recently by the commission and his fellow-employees at a retirement dinner. Mr. Brown is one of four longest-service employees, the others being E. R. Smithrim, already retired, and Jesse Goodsell and Norman Campney still on the job. He was presented with a gladstone bag in honor of his services.

Melvin A. Gough



M. A. GOUGH

Melvin A. Gough, Secretary-Treasurer of the East York Hydro - Electric Commission from 1934 until his retirement in 1955, passed away on November 18.

Before his appointment to the East York post, Mr. Gough was engaged in general accounting.

Born at Napier, Ontario, in 1879, Mr. Gough was an active participant in baseball and football. Later, he found his chief relaxation in golf. He was a member of the A.M.E.U., and was for several years Auditor of O.M.E.A. District No. 4.

P.U.C. Superintendents Receive Appointments

Alfred H. Eadie, Superintendent of Bradford Public Utilities Commission, resigned that post recently to assume a similar position with the Village of Markham Hydro System. The Bradford Commission has announced the appointment of Charles S. Pearce to fill the vacancy. Mr. Pearce has been Superintendent of the Port Elgin Hydro-Electric Commission for the past nine years.

Dundas Utility Employee Honored

H. C. (Bob) Robinson, who recently retired after 32 years as Secretary-Treasurer of the Dundas P.U.C. was presented with an illuminated scroll by Commissioner William Newitt, and a silver tea service by D. P. Cliff, Dundas P.U.C. and Ontario Hydro Commissioner, on behalf of the local utility during a complimentary dinner. Veteran employee E. S. McLean presented Mr. Robinson with a smoking stand on behalf of the staff members.

Named Chairman Of Licensing Board

Ronald Harrison, Manager and Secretary-Treasurer of Scarborough Township Public Utilities Commission, was recently named Chairman of the Board of Examiners for Electricians, under the Metropolitan Toronto Licensing Commission. Mr. Harrison was previously Chairman of the Township of Scarborough Board of Examiners for electrical workers seeking municipal licenses.

Tavistock P.U.C. Chairman Resigns

A member of the Tavistock Public Utilities Commission for the past 11 years, and commission chairman for the past eight years, James H. Francis announced his resignation at the end of the year.

A.M.E.U. Western Region Holds First Meeting

The newly-organized Western Region of the Association of Municipal Electric Utilities recently held the first general meeting of the eastern section at London. An unusually large number of line foremen and superintendents were present, in addition to many engineers and manufacturers' representatives. Topics of discussion included: the use of aluminum in distribution systems; cable splicing; municipal policy on customer Hydro service, and the foreman's place in municipal Hydro administration.

Chairman was Douglas Seath, Manager, Ingersoll Public Utilities Commission. A welcome to London was extended by V. A. McKillop.



ONTARIO HYDRO COMMISSIONERS HONORED

Members of the Ontario Hydro Commission were honored by the Board of Directors of the O.M.E.A. and the Executive Committee of the A.M.E.U. at a recent reception in Toronto. O.M.E.A. President Gordon H. Fuller, on behalf of the officers, who came from all sections of the province for the event, expressed congratulations to the new members of the Commission, Chairman James S. Duncan, Hon. Ray Connell, Second Vice-Chairman, and Commissioner D. P. Cliff. Acknowledging these greetings on behalf of his Commission colleagues, Mr. Duncan expressed gratitude to both associations for their assurances of continued support. Among the guests were, left to right: Commissioner and Mrs. Cliff; Lt.-Col. A. A. Kennedy, Commissioner; A.M.E.U. President and Mrs. E. A. Washburn, Mr. Connell, Mr. and Mrs. Duncan, Mrs. W. R. Strike, Mrs. Fuller and Mr. Fuller, W. Ross Strike, First Vice-Chairman, Mrs. Connell, Dr. Richard L. Hearn, former Hydro Chairman, and Miss Nora Kennedy.

HIGHLIGHTING the observance of Ontario Hydro's Golden Jubilee year, in 1956, the Commission's first radio-controlled plant went "on the line" early last year. Nestling in a picturesque setting on the English River, Manitou Falls Generating Station is situated some 75 miles north of Kenora, Ont. With five units in service by May, 1958, the unique station will have a dependable peak capacity of 68,000 kilowatts.







ONTARIO HYDRO News

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ONTARIO HYDRO

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620 UNIVERSITY AVENUE, TORONTO

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FEBRUARY, 1957

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ELECTRICITY — THE PERVASIVE FORCE

UNDER the sponsorship of the Canadian Electrical Council, our nation, for the first time in history, observed National Electrical Week during February this year. This international celebration serves many useful purposes, but primarily it accentuates the convenient and pervasive role of electricity in the daily lives of many Canadians, many of whom tend to take it for granted.

The obvious fact that a nation cannot afford to be without power for even 60 seconds emphasizes the vital contribution of every segment of the electrical industry to the growth and development of Canada. It is estimated that approximately 175,000 skilled people are employed by the electrical industry today. Let us consider briefly the important function of the 65,000 or more Canadians employed in the utility field to generate, transmit and distribute electricity across the country's vast power networks.

When Thomas Edison perfected and demonstrated the first practical incandescent lamp 77 years ago, he realized that it would have little value unless means were devised to generate and distribute power to those who would make use of the new bulb. And so he took electricity out of the laboratory and made it a servant of mankind. The utilities have carried forward the program that he began. Thus, today, Canada has a chain of generating stations with a total capability of some 15 million kilowatts. Long a leader in water power development, Canada still has many new hydro-electric stations under construction from east to west. Thermal-electric plants are expanding their contribution, and utilities such as Ontario Hydro are turning their attention to new sources of energy. Last year Canada launched the construction of its first nuclear-electric plant.

The Canadian standard of living—regarded as among the highest, if not the highest in the world—is reflected in this vigorous program of power development. In 1955 (the latest year for which figures are presently available), Canada's per capita monthly consumption averaged 368 kilowatthours, as compared with 279 kwhrs. in the United States. It is worth noting that Ontario customers helped to boost the Canadian figure for 1955 with an average per capita consumption of 418 kwhrs. a month. It is, too, a source of gratification to Canadian utilities to realize that their customers enjoy one of the lowest kwhr. rates in the world. For example, revenue per kwhr. sold to residential customers averaged 2.64 cents in the United States during 1955 against 1.66 cents a kwhr. in Canada, while commercial and industrial sales in the United States averaged 1.3 cents a kwhr. compared with 0.7 cents for Canada. Particularly significant, we feel, is the fact that the average cost per kwhr. is less than it was in 1939. Despite spiralling labor and material costs, Canadian electrical rates were approximately 13 per cent lower in 1955 than they were in 1939.

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COVER SHOTS

IT'S QUITE possible that a heavy snow blanket now shrouds Falls Bay—an arm of northern Ontario's Steep Rock Lake—which is depicted on our front cover this month. But Caland Ore Company Limited is still busy with the momentous task of removing the overburden from a rich iron ore deposit at the bottom of the bay (see page 2). The tower in the foreground is one link in a 115,000-volt transmission line which Ontario Hydro built to supply the new mining site.

The arresting aerial view on our back cover this month shows Niagara Falls in the grip of King Winter.



AQUA PURA—A LA 60-CYCLE

BEFORE summer comes again, this 1,700-horsepower, 25-cycle motor will be operating on southwestern Ontario's new power frequency—60 cycles. The 15-ton monster was taken out of service at Metropolitan Toronto's R. C. Harris Water Purification and Pumping Station by frequency standardization technicians in January this year and shipped out for rewinding. The plant's overhead crane simplified the job of hoisting the huge motor on to an Ontario Hydro "float."

THE TWO GENTLEME

Power from Hydro's northern generating stations helps "Clarence B. Randall' and "Joseph L. Block" — the world's largest hydraulic pipeline dredges — to lay bare another rich lode of Ontario iron ore

by DON WRIGHT

MANY centuries ago when giant ice masses were busy shuffling the main features of the Canadian topography into their present formation, a rich body of minerals was deposited in a region that has since become known as northern Ontario.

In a capricious mood, Nature tucked away a heavy iron ore lode beneath one of the many deep lakes that now dot the northwestern area of the province, and it was not until 1938 that the hidden "riches" were located. In subsequent years, economic circumstances and enterprising individuals have combined to promote the development of these ore bodies.

The lake with the "billion-dollar bottom" is, of course, Steep Rock Lake near Atikokan, Ontario, 140 miles west of Port Arthur. Since March, 1943, when the first construction road was started, the lake has been the scene of one of the greatest mining enterprises in Canadian history.

Today, the principal operations of the Steep Rock Iron Mines Limited are spread over two main deposits in the middle arm of the M-shaped lake. The company also commenced dredging to uncover another ore zone in this section during 1955, with production being scheduled for 1959.

Heightening the significance of this Ontario mining operation, another major organization — the Caland Ore Company Limited, a



Canadian subsidiary of Inland Steel Company, Chicago — has joined Steep Rock in its "treasure hunt." Rights to an extensive ore zone — located about 1½ miles to the east of Steep Rock's Hogarth Mine (or "A" orebody) — have been leased to Caland, which contemplates the expenditure of more than $60,000,000 before the shipment of its first carload of iron ore to the Lakehead in 1959 or 1960. This new source of iron ore is expected to yield approximately three million tons a year when the mine reaches full production.

While this extensive development program has included the building of roads, dams, tunnels and even nine miles of 42-inch pipeline, the principle objective, for the present is the dewatering of a section of Steep Rock Lake, known as Falls Bay, and the disposal of silt deposits.

The actual site of the Caland development, in one corner of the M-shaped body of water, resembles the most fantastic sequence of "Alice in Wonderland." Standing on a vantage point overlooking Falls Bay, the visitor is reminded of a giant bathtub from which the plug had been removed temporarily, leaving only sufficient water to float two toy barges and a flotilla of smaller craft. The rotting timbers of a wharf — now overrun with bushes and standing forlornly several hundred feet above water level —serves to further heighten the visitor's feeling of wonderment. It is only after descending into the crater that the activities there begin to take on their true perspective.

Before mining operations started in the area, Steep Rock Lake was 1,263 feet above sea level. The Steep Rock Company reduced the level in Falls Bay to 1,120 feet, and since Caland began pumping operations in March, 1955, this arm of the lake has been lowered to 985 feet — a total reduction of 278 feet.

Prohibitive Cost

Theoretically it would have been quite possible to continue pumping until the lake bed was dry, but the

(Continued on page 4)

F FALLS BAY

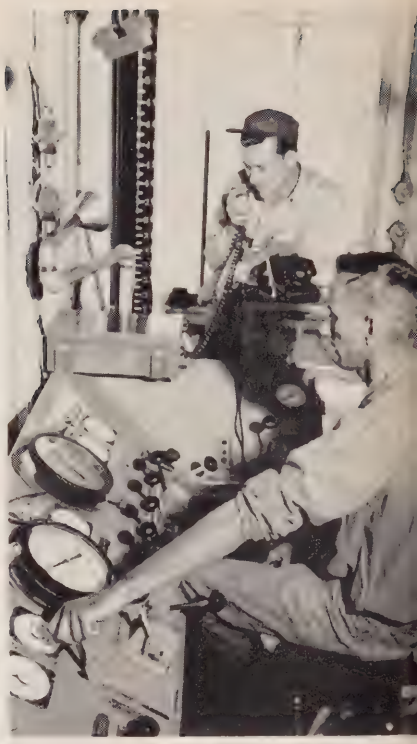
DWARFED by the towering shores of Falls Bay, "the Joseph L. Block," one of two large hydraulic pipeline dredges at the project, pumps out a section of the bay to uncover the vast orebody. The earth-and-water mixture is conveyed to a main pipeline on shore through this floating pipeline.

▽



THIS tree-capped bluff at the northern end of Falls Bay indicates dredging progress since operations began. Each of the dredges is capable of moving a maximum of 130,000 cubic yards of material daily.





ELMER Brown, Construction Aggregates Corp. employee, operates the controls of the "Clarence B. Randall," while Chief Engineer Barney Fonnesbeck directs operations from the forward section of the 175-foot craft.

cost of removing the heavy overlying silt deposits, by truck and power shovel, would have been prohibitive.

Instead the submerged material — ranging from 50 to 400 feet in depth across the entire area — is being carried away in suspension by what is frequently described as "closed-circuit" dredging. This entails pumping the water out of Falls Bay along with sections of the lake bed through two, 42-inch steel pipelines, which discharge into a settling basin at Marmion Lake 4½ miles away. The water finds its way back through two small lakes and down the precipitous slopes of Falls Bay to complete the dredging sequence. Those in charge of the excavation project estimate that it will be necessary to pump out Falls Bay nine times before the overburden has been completely removed.

Described as the largest operation of its type ever carried out in the



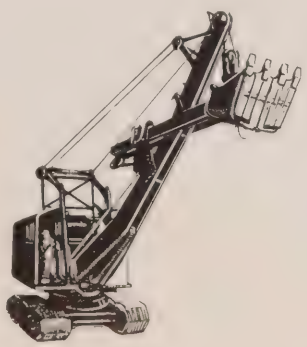
SIX of these 10,000-horsepower motors are used in removing the overburden, which ranges from 50 to 400 feet in depth across the extensive mining site. This motor operates the pump on the "Clarence B. Randall."

world, the spectacular Falls Bay project is said to involve the removal of more material by dredging than the construction of the Panama Canal. It is anticipated that 180 million cubic yards of clay, sand and gravel will be shifted before the company can start mining the estimated 50 million tons of iron ore in this particular body.

The principal figures in this mammoth excavation job are the "Clarence B. Randall" and the "Joseph L. Block" — reputed to be the largest hydraulic pipeline dredges in the world. Owned by Caland Ore Company and operated by Construction Aggregates Corporation, dredging contractors, these gargantuans were assembled on the site from some 700 carloads of separate "parts," and launched in the late summer of 1954. Although actual dredging did not get under way until the following spring, approximately 45 million cubic yards of silt had been removed by October 1, 1956.

With hulls measuring 175 feet long and 50 feet wide, each of these aquatic monsters is equipped with massive pumps operated by direct-drive, 10,000 - horsepower motors. Four booster pumps of similar capacity raise the silt and water vertically from the bay for a distance of some 800 feet, and then drive it through the pipeline over rugged terrain to the Marmion Lake reservoir.

The excavation process follows a closely co-ordinated sequence. Electrical control equipment guards against miscalculation in successive starting of the dredge, as well as the floating and shore booster pumps, which have operating speeds of 350 r.p.m. Then the dredge-cutters, mounted on 74-foot ladders, are lowered into the water. The cutters churn the material on the lake bed, impelling it toward the suction pipe in the submerged end of the ladder. From this point, the fluid silt is passed through the dredge pump to the opposite end of the dredge. Here it enters a floating pipeline — supported on pontoons — which conveys it to the main pipeline on shore. The shore booster pumps force the mixture through the pipeline up the almost vertical shore of Falls Bay and thence to the discharge point at Marmion Lake. The dredging site echoes with the clatter of large boulders being hurled through the steel pipeline after being drawn up by the dredge pumps, which can pass rocks up to 21 inches in diameter. Larger sizes are removed through a rock box installed at the pump intake.



As the lake level is lowered, two diesel-powered monitors direct jets of water under high pressure against the steeply-sloping shores to wash down the remaining vestiges of silt. To permit shifting of the dredges, motor-driven cable reels have been mounted on barges moored astern of the dredges. Thus, the length of the 5¾-inch diameter armored cables, supplying power at 13,800 volts from a transformer station on shore, can be altered as required.

24-Hour Schedule

Construction Aggregates Corporation has approximately 225 employees at work on the various phases of the dredging operation, which calls upon such varied skills as engineering, pipeline welding, cable splicing, tool making and even cooking. Each dredge operates with a 12-man crew — a small complement considering that each of these two workhorses will sometimes move as much as 130,000 cubic yards of lake bottom material in a single day. Dredging will continue day and night throughout the winter in order to meet, or better, the target date for mining.

From the initial planning stage, this development program required the closest co-operation between the Caland Ore Company and Ontario Hydro for such a power load could not be handled by existing facilities, even though Hydro had made special arrangements to supply the original Steep Rock operations in 1943. At that time a 115,000-volt transmission line was built from Port Arthur, and a 30,000-kva transformer station was placed in operation at Moose Lake, four miles north of Atikokan. To cope with the new demands, and to augment the transmission system throughout the area, a second 115-000-volt line between Port Arthur and Moose Lake was completed in April, 1955. Power is now supplied from Moose Lake Transformer Station. This

(Continued on page 6)

station also transmits power to Steep Rock Iron Mines and Atikokan.

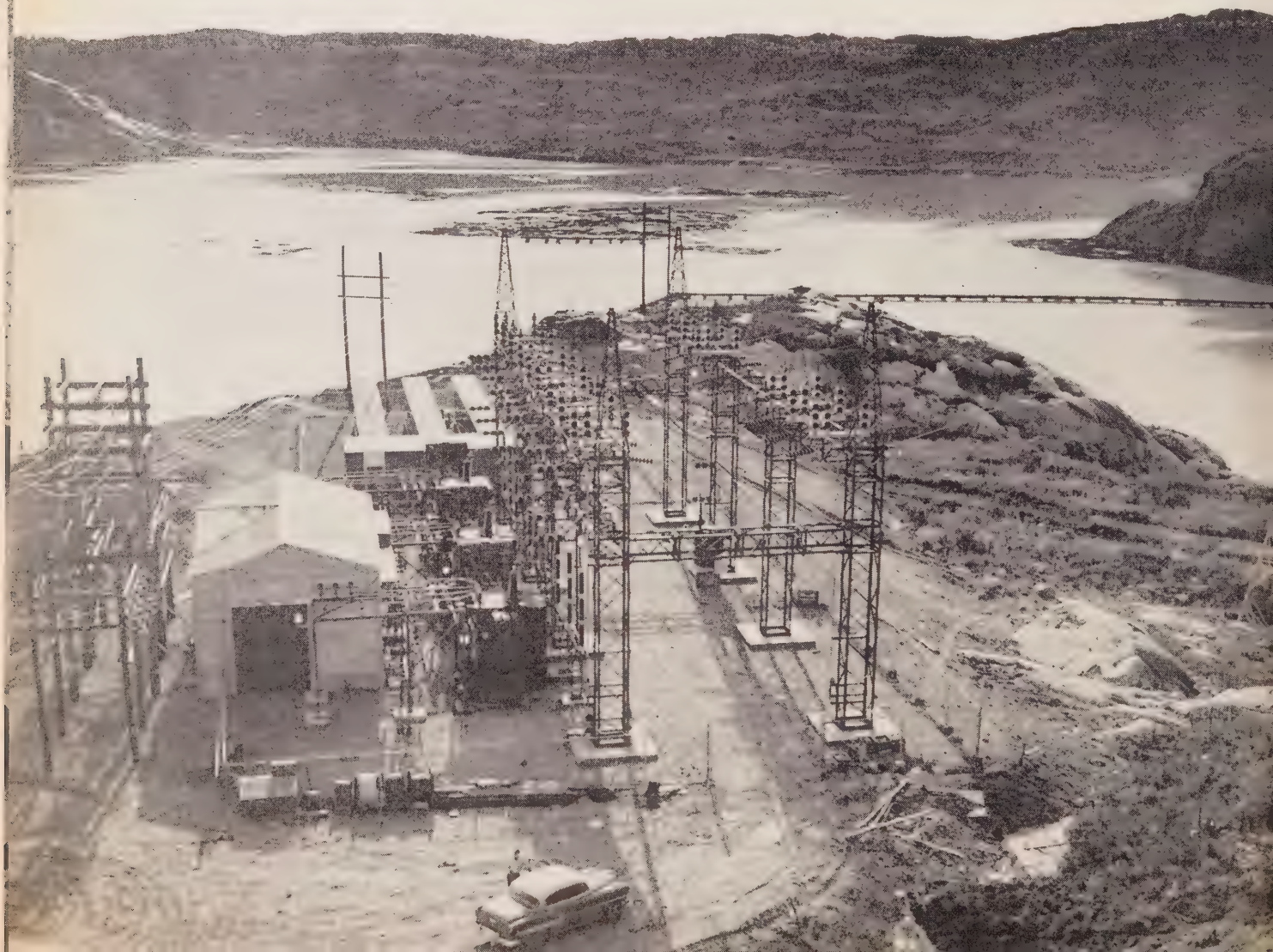
At Falls Bay, the Caland Company established a 75,000-kva transformer station where 115,000-volt power from Moose Lake is stepped down to 13,800 volts for dredging operations, and to the lower voltages for general distribution at the mine site. Hydro also installed a 36,000-kvar bank of static capacitors to assist in maintaining system voltage levels.

Water Control System

While attention is presently focused on the dramatic activities in progress at the dredging site, extensive and essential associated projects, including a vast water control system, were also necessary, and are either completed or under way. As water tends to finds its own level, it is not possible to pump out an area such as Falls Bay without taking every precaution to ensure that it does not return — except under control. Towards this end, several block dams have been built to seal off the south-east arm of Steep Rock Lake from Falls Bay; to control the return flow of water from Marmion Lake; and to build up low areas to form two vast reservoirs where spring run-off water will be stored. This system has also involved the construction of three major tunnels for the purpose of diverting water away from the lake. A series of block dams had previously been used by Steep Rock Iron Mines Ltd. to divert the Seine River from its original course through Marmion Lake and into Falls Bay.

Complete New Highway

Road construction is another vital phase of the Caland operations, for transportation was one of the most serious obstacles during the early stage of the project. All supplies, including the heavy equipment required for the construction of the dredges, had to be hauled 14 miles over a narrow, twisting logging road from the railway siding at Steep Rock Mines to Falls Bay. Late last year the company completed an all-weather highway from Atikokan direct to Falls Bay, which has reduced the length of this trip to 6½ miles, and greatly improved the disposition of vehicle operators. A second and more hazardous road-



building job is proceeding at the mine site where an access road is being put through to the ore body. Because of the almost vertical shoreline, this road must follow the contours of the man-made crater it penetrates, and road construction can only proceed as the lake level is dropped. All supplies for the barges and monitors must be lowered by crane to boats on the surface of the lake from the latest point of progress on this new road.

As the ore body is uncovered, open pit mining will commence, while dredging continues. Canadian National Railways will bring a spur line into the property, and ore will be moved by electrically-driven conveyors from the lake bottom to the rail siding.

Town That Iron Built

The rose-tinted clouds that rise from the streets of Atikokan attest to the nature of the riches that underly its spectacular growth. A railway divisional point of 300



persons at the beginning of World War II, "the town that iron built" now has a population of 6,000, and local planners anticipate that another 4,000 citizens will take up residence by 1960. Far removed from the type of shack town that seemed inevitably to follow the discovery of mineral wealth in former years, Atikokan has voluntarily imposed restrictions on its growth by adopting the high standards of the National Building Code. The wisdom of its decision is to be found in the neat appearance of its housing developments and in the substantial, permanent nature of its commercial buildings.

While iron dominates the town's economy, it does not dictate its politics or administration, for Atikokan is in no respect a company town, and its future remains in the hands of its people. During 1956, civic achievements included the construction of a new high school, additional hospital facilities, improved sewer and water services, a road-paving program and a new fire hall. Atikokan also became Ontario Hydro's latest cost-contract municipality during the year with the purchase of the local electrical distribution system from the Commission last September.

Legend has it that a pot of gold lies at the foot of every rainbow. At Atikokan it's iron. Today mining company executives are looking forward to the not-too-distant day when, by an ingenious combination of engineering skill, a fully-adequate power supply, and an increasing per capita use of steel, the Steep Rock Range will be producing at least 8,500,000 tons of this valuable ore a year. ■



△ CARRYING abrasive material, including boulders up to 21 inches in diameter, the twin, 4½-mile pipelines require considerable maintenance. Here a crew is repairing a worn joint in one of the lines.

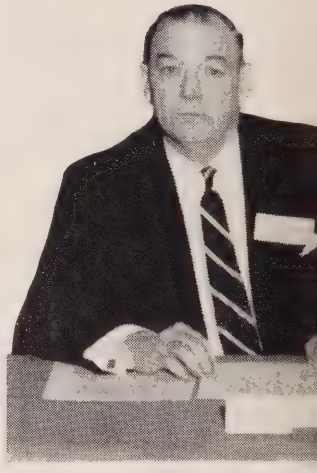
CALAND'S Project Engineer, Owen Boland, checks the pressure in one of the pipelines, which is discharging aqueous silt — containing earth, gravel and rock—from Falls Bay into the Marmion Lake basin. ▷



KO with a 115,000-volt Hydro transmission line, this 75,000-kva rmer station steps down power to 13,800 volts for dredging ions and to lower voltages for other purposes at the mine site.

Can Local Utilities Promot

"Emphatically yes!" say members of O.M.E.A. panel group



FRANK WILKINSON
Business Manager
London P.U.C.



OBSERVANCE of National Electrical Week, sponsored by the Canadian Electrical Council, during the week of February 10-16 this year, has focused the attention of various segments of the nation's electrical industry on the recurrent and perplexing problem of adequate wiring.

A recent comment by J. W. Kerr, Chairman of the Adequate Wiring Committee of the Canadian Electrical Manufacturers Association — a member of the C.E.C. — is of particular interest. Mr. Kerr observed that "The serious national problem of obsolete and overloaded wiring systems exists today in three out of four Canadian homes. Until this is solved, most Canadians are unable to enjoy the full benefits of the electrical servants available."

What can local electrical utilities in Ontario do to promote the concept of adequate wiring in their respective municipalities? It's true that they support the Electric Service League of Ontario through the medium of an annual grant made on their behalf by Ontario Hydro.

Active Support

But is the lack of active support and promotion provided by some utilities in their respective communities a "bottleneck" and a deterrent to this important campaign? Such a possibility was mentioned by W. Ross Strike, Hydro's First Vice-Chairman, who acted as moderator of a panel discussing the role of electrical utilities in furthering adequate wiring at the recent annual meeting of O.M.E.A. District 4 in Toronto.

The panel included Harry J. Foy, Manager, Electric Service League of Ontario; John T. Barnes, President, O.M.E.A. District 8, and a member of the Sarnia Hydro-Electric Commission; Roland L. DeMers, Past President, Electrical Contractors Association of Ontario, and Frank Wilkinson, Business Manager, London Public Utilities Commission. Highlights of the discussion are presented herewith:

HARRY J. FOY

On Oct. 5, 1956, the membership of the Canadian Electrical Manufacturers Association approved a budget of $100,000 to promote a national campaign for adequate house wiring. Due to the limited amount of money available it started off with advertisements in newspapers in Canadian cities of 25,000 or more, building up to the greatest impact during Electrical Week which was celebrated in Canada, in conjunction with the same in the United States, during the week of February 10 to 16, 1957. In addition to newspaper advertising, there will be radio and television spots, inclusion of the

Adequate Wiring?



JOHN T. BARNES
Sarnia, President
O.M.E.A. District 8

W. ROSS STRIKE
First Vice-Chairman
Ontario Hydro

ROLAND DeMERS
Past President
Electrical Contractors Association

HARRY J. FOY
Manager, Electric Service
League of Ontario

theme in the institutional advertising and television shows of the C.E.M.A. membership. The contractors, dealers, distributors, and others are co-operating in the use of display materials, which will be available. The utilities will also be asked to co-operate in this phase of the promotion.

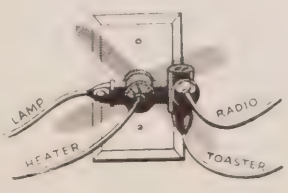
As the utilities are a perfect point of contact with the consumer, it is highly desirable that this campaign receive their fullest co-operation through the display of material in their offices and bill collection agencies, the inclusion of stuffers etc. when sending their bills out and by other means of local advertising.

Some utility commission members may ask whether a local commission should participate in such a program of advertising. My answer would be an emphatic *yes*.

Wiring Inadequacy

The presence of many two-wire services on a system is an indication of wiring inadequacy. These two-wire services, in addition to being an undesirable account to a utility, due to the low revenue, present the problems of low voltage complaints, fire hazards etc. due to the overloading of circuits through excessive use of extension cords and multiple outlet attachments. Elimination of this type of service should be the target of every municipality.

I would suggest that one of the duties of a commission is to lend its support, in its own municipality, to the effort to obtain effective provincial legislation to control the activities of many so-called contractors and electricians who are only interested in making a profit, regardless of the quality of work they do or the materials they use. Local utilities, too, should urge an immediate upgrading of the Code to bring up-to-date many requirements that were laid down 20 or more years ago.



J. T. BARNES

It is rather difficult to pinpoint the exact spot where the Electrical Code ends and where the municipal utilities should begin to take over the ever-growing problem of adequate wiring.

For every new home being built today, there are at least 30 to 40 older homes with a crying need for housepower.

It would keep all contractors busy just rewiring the homes that become overloaded each year if they would go after the business.

H. R. Stevenson, Manager of Sales, for the Detroit Edison Company told me that his company, along with other utilities in the

(Continued on page 10)

Edison Electric Institute, are presently spearheading a campaign to rewire 20,000,000 homes in the next 10 years. Everyone in the electrical industry is behind this effort.

It may be of further interest to note that the Detroit Edison Company has embarked on a sales training course for electrical contractors. For a nominal fee, any contractor in their service area can attend this course. The results so far have been outstanding.

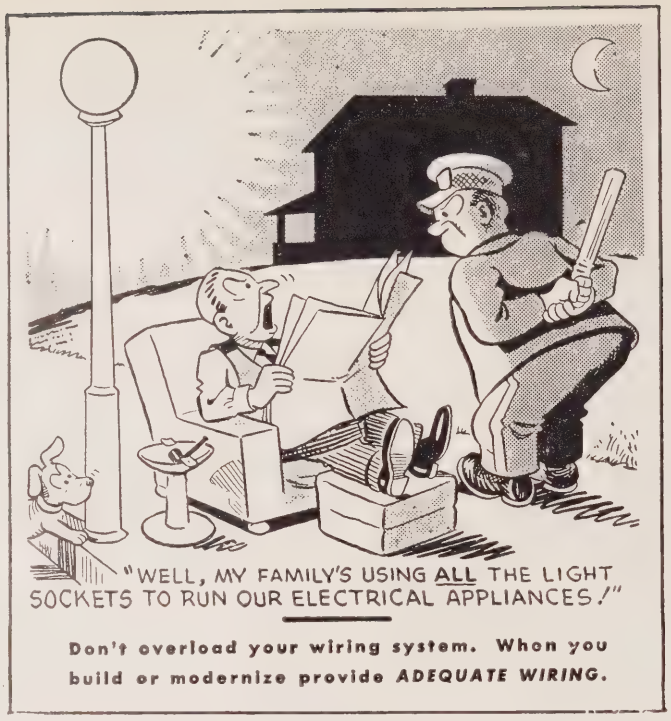
Budget Plan

The Detroit Edison Company also offer its employees an easy budget way of paying for anyone wanting to "full-housepower" their home, and not having the ready cash. This "down-to-the-grass-root" policy has proven a huge success. The contractor is paid in cash by the Detroit Edison Company, and the employees pay the company through a payroll deduction plan. Deduction of $1.00 a week is made on a job ranging between $25.00 to $100.00. Deduction of $2.00 a week is made on a job ranging between $100.01 to $200.00; $3.00 a week on work from $200.01 to $300.00; $4.00 a week on work from $300.01 to $400.00. If the housepower wiring cost is less than $25.00, the contractor will expect full payment by the employee upon job completion.

Gratifying Results

The Sarnia Hydro-Electric Commission has been promoting the Red Seal standard of wiring in earnest since 1952. But this service must not be delegated to a junior clerk. It must be done by a person of experience, and one in whom the builder or owner has confidence. Sarnia was fortunate in this regard. When our former manager, C. L. McMann, was superannuated we retained him at a nominal salary to contact the trade and preach Red Seal adequate wiring. While the results have been gratifying with about 30 per cent of all new homes installing Red Seal — yet it is not completely so, for if adequate wiring were given strong promotional support, then it would take most of the anxiety out of this contentious problem, and tend to produce safer homes with a far better retail value.

Sarnia's record is a fair indication of what can be accomplished when a commission promotes and fosters the program of adequate wiring in a limited way:



CARTOONS stressing adequate wiring are available to local utilities from the Electric Service League of Ontario for use in promotional advertising.

SARNIA'S RED SEAL RECORD

Year	Months	Red Seal dwellings	New Domestic customers added to system	Percentage
1952	4 (Sept.)	34		
1953	12	265	874	30.4%
1954	12	228	526	43.4%
1955	12	308	541	57.0%
1956	10	245		

ROLAND L. DeMERS

I wonder whether there is any doubt in the minds of anyone here that local utilities can help in adequate wiring promotion. In my view, the answer to the question posed to this panel is an emphatic "yes."

With the single exception of the electrical contractor, I do not think that there is any segment of the electrical industry better able to promote adequate wiring.

Customer Respects Hydro

May I summarize my reasons for believing that local Hydro commissions are in a position to promote adequate wiring?

First, *the consumer looks with respect to the local utility for advice on his electrical problems.*

Second, *local Hydro personnel come into contact with inadequate wiring every day.* They are in a position to urge its removal.

Third, *local systems know where inadequate wiring exists.* They can, as no one else in the electrical industry can, concentrate on underwired consumers and urge them to modernize their wiring.

Finally, I suggest to you that the local utility—*as the best organized local unit of the electrical industry* —is exceptionally well-equipped for this important task.

FRANK WILKINSON

I would say local commissions

have been promoting adequate wiring to some extent since the very inception of Hydro.

Red Seal standards today call for a 100-ampere service.

Tomorrow—next year—will it be a 200-ampere service? "How's your housepower?" — "Live Better Electrically" — "Modern Living Demands Modern Wiring" — "Wire-On-Time." These are only a few of the titles of wiring campaigns now in progress by power companies and utilities in the United States.

Many power companies report adequate wiring campaigns so far very successful. Most notable, I believe, is the Cincinnati Gas and Electric Co. Here is what they say:

Out of a study of the residential electric load growth came the realization that the kilowatthours per residential customer could not double within the next 10 years unless the wiring in the majority of the homes was modernized.

A rewiring program with a "Wire-On-Time" plan was started in October 1953; since that date they have rewired 3,187 homes with a total contract of $915,000, and they found the average annual kilowatthour increase to be 770 per rewiring job.

London Plan

Frankly I am not aware of what is being done in other municipalities other than the London Public Utilities Commission with which I am connected.

The electric iron was not readily accepted in 1914, nor was the refrigerator in 1924 or the automatic washer in 1944; however, that is not the case today. All these appliances are now taken for granted, not only in the modern and adequately wired home, but also in the inadequately wired, and here is where I believe the utilities can be of great service.

We felt in London our promotional efforts could be well directed to improving and helping the customer to modernize his present home-wiring system.

The London Commission approved of the idea, and promotional plans and information to get the campaign under way were supplied by the Electric Service League of Ontario, The National Adequate Wiring Bureau of New York and the Cincinnati Gas and Electric Co. I think I can assure you that these organizations, who have had a great deal of experience in promoting adequate wiring will supply you with all the information necessary to launch a campaign.

On September 9, 1956, we called a meeting of representatives of all phases of the electrical industry in London and included the fire chief. The meeting on September 9 was attended by 27 men; all were definitely in accord that adequate and safe wiring is most important and guaranteed their support.

A time-payment plan was established with a minimum down payment of 10 per cent, and the balance to be paid monthly over a period of six to 24 months, with a carrying charge of seven per cent a year.

The plan and procedure is quite simple, and involves the home owner, the electrical contractor and the utility.

It applies to any home owner within our service area being served by us, providing the credit rating of the home owner is satisfactory.

The owner and electrical contractor reach an agreement on the work to be done and the cost of such work. An agreement form, which contains a promissory note, is filled out and signed by the owner and contractor. At the same time the owner agrees to assignment of the note to our commission for collection. The contractor endorses the agreement and submits it with an invoice to the amount of the contract, which is paid in full by the commission.

17 Homes Rewired

As a direct result of our wiring promotion and "Wire-OnTime" plan, which has now been in operation slightly over a month, we have

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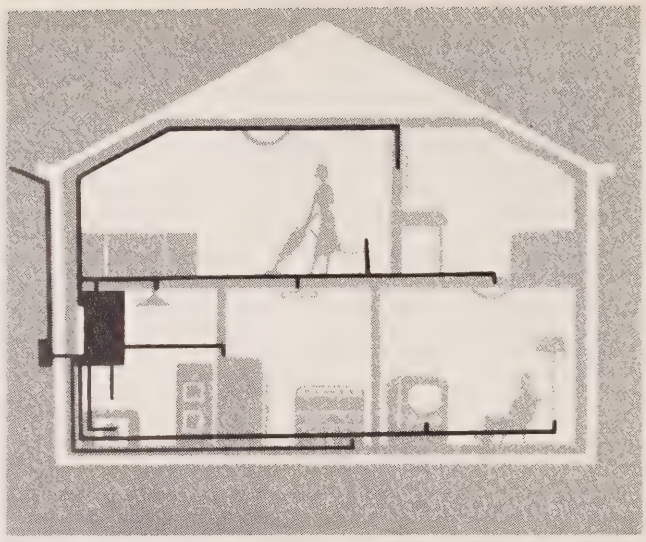


CANADIAN homes are using many new types of electrical appliances and equipment. Today the Red Seal standard set by the Electric Service League of Ontario requires a 100-amp service in the home.

been instrumental in having 17 homes in London rewired (four have been on a cash basis) amounting to a total of $3,500, an average of $206 per rewiring job.

However, the London Commission has approved the acceptance of applications for loans, but only with carefully selected risks. We hope special legislation will be obtained early in 1957.

I suggest if the present domestic load is to be maintained, we not only need "Wire - On - Time" plans, but also need a real live advertising campaign prepared by an expert, and advertising materials made available to the municipalities on, say, a share-the-cost basis.



EACH home should have sufficient branch circuits of proper wire sizes to accommodate all appliances and lamps.

Summary

Crystallizing the opinions of the panel members was a brief question-and-answer period with Mr. Strike acting as interrogator:

1. Question: Mr. DeMers, why is adequate wiring so important? **Answer:** Basically: (a) Upon it depends modern electrical living without the inconveniences and hazards of overloading; (b) Upon it depends your future load growth.

2. Question: Mr. Barnes, with the average home daily demanding more electricity, what size service would you suggest installing? **Answer:** The 30-amp. service passed out many years ago, and the 60-amp. service is not capacity enough for the average consumer at the present time. Red Seal requires a 100-amp. service or better, and in many cases this is not enough.

3. Question: Mr. Foy, does the Electric Service League set a standard for wiring adequacy? **Answer:** Yes. The Red Seal standard of wiring was recently revised to better meet today's requirements.

4. Question: Mr. Wilkinson, what advantages other than safety and increased consumption might be expected from an adequate wiring program? **Answer:** It increases the future market for appliance sales, and strengthens the competitive position of the appliance manufacturer, dealer and utility; It recovers the goodwill lost when the utility is criticized for low voltage when insufficient house-wiring is mainly the real cause; It reduces service cost, decreasing the number of fuse replacement calls, voltage complaints and other related service calls.

5. Question: Mr. DeMers, why isn't the electrical contractor doing more to sell adequate wiring and rewiring? **Answer:** First, in the case of new construction, the electrical contractor's biggest challenge is the builder or general contractor, who is apathetic to electrical adequacy in any building. Those people in the race to produce cheaper buildings traditionally have always cut electrical services to a bare minimum. Many even refuse to listen to any story about the need for electrical adequacy. They flatly state as their reason "that the public does not demand it," and until such time as they do, they are not prepared to make any increased allowances for electrical adequacy out of their costs of construction.

6. Question: Mr. DeMers, when do you think the builder's view will change, if ever? **Answer:** Electrical contractors feel that his views will not change until such time as a proper educational program is instituted at all levels of consumer contact by the electrical industry in its entirety, outlining the needs for present and reasonable future adequacy.

7. Question: Mr. DeMers, what would a wiring job cost such as you described for "the present and reasonable future adequacy" of a new home? **Answer:** We advance a figure based on 3½ per cent of the total selling price. Present costs are running around 2 per cent of the total selling price and in many cases lower.

8. Question: Mr. Barnes, how can we impress the public about the necessity for Red Seal adequate wiring? **Answer:** Of course, the most impressive way is to write the requirements into the Code. In lieu of that, every commission should treat adequate wiring seriously by advertising in the press, on their Hydro statements and letterheads. Service clubs, church groups, etc., could be given an address on the subject by a representative of the Electric Service League of Ontario, located in Toronto at 191 College Street.

9. Question: Mr. Foy, you mentioned in your address the need of upgrading and revising the requirements laid down in the Canadian Electrical Code. To what did you refer? **Answer:** There are many points which should be covered or revised: (a) A minimum service capacity should be laid down; (b)

The number of branch circuits was recently increased to eight. While this is a step in the right direction, we feel that it is still bordering on inadequacy; (c) The number of outlets permitted on a circuit should be reduced from the present 12 to not more than eight. This would help in improving the poor circuit layout frequently installed; (d) The use of circuit breakers to eliminate the present tendency to overfuse; (e) The use of U-Ground, 3-wire receptacles in all cases, rather than in certain specified locations; (f) Tighter regulations regarding inspection; (g) Licensing of all electricians by the province to assure qualified workmanship.

10. Question: Mr. Foy, does adherence to the requirements of the Canadian Electrical Code and Hydro Inspection Regulations assure wiring adequacy? **Answer:** No. The Code and the Regulations are primarily concerned with quality of materials, workmanship and safety. Adequacy of the installation is the responsibility of the builder. Revision of the Code along the lines previously stated would go a long way to correct this situation.

11. Question: Mr. Wilkinson, in the London plan what procedure is taken in approving credit? **Answer:** Through our Accounting Department, we check the regularity of payment of the applicant's Hydro accounts, and we also obtain a history of his or her credit record from the Canadian Bureau of Credits.

12. Question: Mr. Wilkinson, what recourse do you have for non-payment of a rewiring account? **Answer:** Almost without exception these rewiring jobs have required a service charge, which might be repossessed for non-payment. Also we do not discourage the impression that non-payment will result in discontinuance of electric service. A wiring agreement is also noted on the owner's Hydro application card. In the event the owner sells, and the agreement has not been completed, this information is brought to light when the owner makes application for transfer of service.

13. Question: Mr. Wilkinson, how much wiring can be included in your wiring plan? **Answer:** The wiring may include any and all changes from the service entrance or the end of our facilities to the point of appliance connection, in-

(Continued on page 20)

"TO ASSIST local utilities to promote adequate wiring in their communities, the Electric Service League of Ontario can (among other services) provide mats or cuts for advertising; prepare and provide suitable literature for mailing and handout purposes." — Harry Foy.

▽





NEW LIGH

3000 years ago the Point Peninsula Indians lit their ceremonial fires on Sheek Island near the site of the international St. Lawrence Power Project

by GARY SMITH

NOT far from the spot where power shovels, earth carriers and a vast army of some 7,000 men are harnessing the power potential of the turbulent St. Lawrence River, lies the burial ground of one of Canada's most ancient races.

Beside the white rush of the historic Long Sault Rapids, soon to disappear, the Point Peninsula Indians lit their ceremonial fires and cremated their dead some 3,000 years ago. Since 1947, Canadian archaeologists have been exploring the western tip of Sheek Island, and recovering the relics of this race, believed to be the remote ancestors of the Iroquois tribe.

Last summer scientists marked out the site and began a patient, laborious program of digging, sifting and sorting. This year they will continue, hoping eventually to piece together — with the aid of a few remnants of pottery, some flint tools and weapons and a scattering of bone fragments — the life story of the Point Peninsula people.

Time is running out on this adventure into the dim past, however, for in 1958 much of Sheek Island will slip beneath the waters of the new forebay to be formed when the project begins to deliver power for the first time.

Upstream from the two powerhouses being built jointly by Ontario Hydro and its partner, the Power Authority of the State of New York, some 40 miles of shoreline and several islands will go under water as the river banks are widened to provide the headpond necessary for power production.

The dig, located in Ault Park on Sheek Island, is known to have



◁ THIS Cornwall school teacher, Miss Eileen Fallows, was one of several voluntary workers at the Ault Park exploration site.

(Photos by F. Fogg)

ON AN OLD RACE

been a burial ground and further work on the site may yet unearth a Point Peninsula village. So far, professional and amateur archaeologists from the University of Toronto, the National Museum of Canada, the Ontario Archaeological Society, the Quebec Archaeological Association, the Royal Ontario Museum Association, federal civil servants from Ottawa, Ontario Hydro employees working on the power project and even local people from the Cornwall district all have lent a hand in the digging program.

A favorite picnic spot for years, the Ault Park site is only a few miles from the City of Cornwall. Holiday makers were still using the spot when, in 1947, Dr. Douglas Leechman of the National Museum happened on it in the course of an archaeological survey. The University of Toronto subsequently carried out a supplementary survey in 1954.

Digging Program

Last spring, Dr. J. N. Emerson, Supervisor of Archaeological Studies at the University's Department of Anthropology, led a party of graduate and senior undergraduate students to the site and, with the aid of an Ontario Government grant, began a summer-long digging program. The discovery of peculiarly-grouped bone fragments, and what are presumed to be grave relics, soon established the site as that of a burial ground. The decorative pattern on some potshards suggested the Point Peninsula people.

Interest runs particularly high over the Ault Park dig because scientists, as yet, have only a

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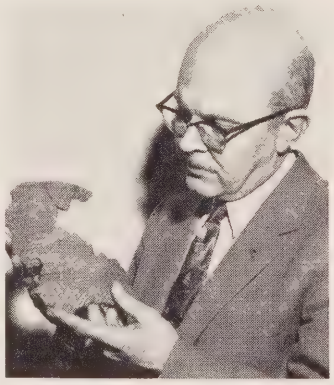
△ DR. J. N. Emerson, who supervised the University of Toronto "dig" (right), with the aid of Walter Kenyon, Assistant Curator of Ethnology, Royal Ontario Museum, Toronto, surveys the exploration site on Sheek Island to ascertain the location of the graves.



◁ EXCAVATION entailed patient digging and sifting of the soil in the ancient Indian burial ground. In the foreground, Mr. and Mrs. James Hawkesbridge, Ottawa vacationists, are shown at work in two of the plots



△ PRIZED tokens of the Ault Park project are the large potshard (top) with a decorative pattern made by fabric impressions; two later examples of Point Peninsula pottery (centre, right), a clay pipe bowl (centre). The notching and incising techniques on the two examples (centre, left), are typical of later Iroquoian design, indicating the possibility that the Point Peninsula people were ancestors of the Iroquois tribe. In the two types of transitional pottery (bottom) the holes punched from the outside made rounded nodes on the inside.



DR. EMERSON holds another fragment of pottery taken from one of the graves. ▷

THESE five large knife blades were found in some of the graves. All are of flint, the one on the left being a handsome example of Point Peninsula work. It will be noted that each blade is set at a slightly oblique angle. It is believed possible that wooden or bone handles were attached to the tools. ▷

"sketchy" knowledge of the Point Peninsula aborigines. Named for the place in New York State where signs of the civilization were first discovered, the race is thought to have come originally from the west, and about 4,000 years ago began migrating eastward. Traces of them have been found across the continent.

Indian archaeologists feel that a more complete picture of the Point Peninsula people may have a bearing on the theory that all North American Indians are the descendents of a Mongolian race that crossed the Bering Strait into Alaska 12 to 14 thousand years ago.

The most interesting and spectacular finds at Ault Park pertain to the burial customs of these people. On a sandy bluff overlooking the Long Sault Rapids, 18 cremation burials were encountered at a depth of about 30 inches. From these, the scientists have pieced together a picture of the ancient rituals.

It is thought, for instance, that the main crematorium was situated at some distance from the site, and that a few handfuls of bones were later interred, with grave offerings, in a symbolic burial of the individual.

Relics Unearthed

The relics include one beautiful specimen of a flint knife, six and one-half inches long; a bevelled spear blade of native or meteoritic copper; a cache of finely-made laurel leaf spear or arrow heads,

and several potshards on which the decorative pattern is plainly visible.

Another interesting discovery in one grave was the presence of some fragments of dog bones. The suggestion is, of course, that even 3,000 years ago man's best friend held a place of affectionate esteem, and filled a distinctive role as a tribal "warning signal."

At another point in the park, the diggers last summer discovered many more pottery fragments, spear and arrow heads and whetstones. The presence of post mould is providing information on house structures used by the Point Peninsula people. The investigators still have not determined, however, if such finds represent a long term occupation or the periodic accumulation, which accompanied visits to the Long Sault for burial rites.

Dr. Emerson, a student of the Iroquois tribes, feels the Ault Park site may eventually shed light on the ancestry of the Six Nations Indians. Similarities in the treatment of pottery decoration and flint art indicate such may be the case, and further evidence is likely to be uncovered in this summer's dig.

Hydro Employees Help

He recalls that last year's project was aided invaluably by Hydro employees and area residents, who would frequently show up at the site eager to go to work. "Often we'd give them a trowel and they'd spend a whole day or even a weekend poking away at a hole

"I remember one couple who were curious, and stopped to see what was going on. They eventually became so enthusiastic about the project they spent their two-week vacation helping us out."

Because grants for the work are modest, the university can afford to send only a small permanent crew to the site. Visitors who want to work this summer, says the doctor, will be welcomed with open arms. ■

THE CASE OF THE DANCING VISITORS

THE Shorter Oxford English Dictionary describes Science as "a branch of study, which is concerned either with a connected body of demonstrated truths or with observed facts systematically classified . . ."

Dr. Emerson, first and foremost a scientist, tells of a night on last summer's Ault Park dig when there occurred some manifestations so startling as to defy classification, even by the highly skilled men of science.

The university archaeologist and three assistants had chosen to spend an evening in camp while all the remaining members of the "dig" had journeyed to Montreal for a night out. Around a blazing campfire, Dr. Emerson and his three associates swapped mild ghost stories.

After a time, someone suggested that, as a lark, they should sleep the night on the point at the site of the dig. "We got there," relates the professor, "to find the rapids dashing and swirling madly in the darkness.

"Two of us lost interest immediately and headed the 200 yards back to camp. The other two rolled up in their sleeping bags inside the little fenced enclosure where we had located several of the Indian graves."

Dr. Emerson says he and his companion slept soundly in their tent and woke next morning to see their two friends straggling back from the point. "They looked as if they had not enjoyed much sleep.

"We were washing up when one of them came over to me and demanded to know what sort of nonsense we had been up to on the point the night before. I told him we hadn't been near the place since we had left them to return to camp."

And here unfolds the strange story. Dr. Emerson says he was told the two awoke in their little enclosure to hear grunts and strange sounds, and were startled to see about 18 forms in white sheets dancing and leaping in a circle outside the fence.

"I told them truthfully, that we hadn't been near the place. Nor had we heard sounds of any visitors during the night.

"The two fellows were strangely silent for a time during that day. And they maintained their accusation that we had sneaked back to the point to scare them."

Even more amazing is Dr. Emerson's explanation that "we had discovered 18 Indian graves along the point by that time—approximately the number of nocturnal visitors the two chaps claim to have seen."

Also, he points out, there weren't 18 sheets in the whole camp at the time.

To this day, says Dr. Emerson, there has been no explanation as to what the two diggers saw. An explanation, it is needless to suggest, may have to come from 3,000 years in the past. ■



Site of an early hydro-electric plant, Georgetown celebrates the official opening of its new utility headquarters building

GEORGETOWN

MANY years ago Ontario had a community known as Hungry Hollow. That name today is familiar only to students of 19th century Ontario history. The name has disappeared, but the community, due largely to the "self-help" spirit of the pioneer villagers transplanted in their progressive descendants, now flourishes under the name of Georgetown.

Evidence that the spirit of progress is still a strong motivating force at Georgetown was provided recently when the new and enlarged headquarters of the Georgetown Hydro - Electric Commission were formally opened in the presence of citizens and interested well-wishers from other sections of the province.

Officiating at the opening ceremony, Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy lauded the spirit of enterprise manifested by the completion of the new building.

Declaring that two events would assure Georgetown a permanent place in hydro-electric history, the speaker recalled that John Barber, a descendant of the Barber family, which arrived in Georgetown in 1837, built a 100-horsepower hydro-electric plant on the Credit River downstream from his woollen mill. Power was transmitted from the generating station to the mill by means of a two-mile long transmission line.

This line was built in 1888, and is believed to have represented the world's first long distance transmission of electric power, preceding the first transmission line constructed for commercial purposes in the United States at Pomona, California, in 1891.

In addition, by using this energy to light his mill, John Barber is reputed to have been the first person to use hydro-electric (as distinct from hydraulic) power for industrial purposes.

Hydraulic Turbines

Interestingly pertinent to this historic event was Col. Kennedy's recollection that his great-grandfather's firm supplied the hydraulic turbines for this plant.

Illustrating Georgetown's progress, Col. Kennedy pointed out that the number of municipal customers had increased from 354 to 2,007 since 1913, when Georgetown received its first power from Ontario Hydro — a six-fold increase. "The fact that the power demand since 1913 has grown from 72 to 4,607 kilowatts, or nearly 65 times the original load, is another striking example of the growth of the Georgetown system," the speaker stated.

Observing that a building in itself - no matter how striking its architecture — is still only a building, Col. Kennedy said that "the spirit of those who work in the building is what really counts in service to the community.

"From the record of the past, I am confident that the people of Georgetown may rest assured that the spirit of all those who serve within these walls will continue to be that of dedication to the ideals of public service."

Col. Kennedy, in cutting the traditional red ribbon across the main entrance to officially declare the new headquarters open, was assisted by Mayor John T. Armstrong and Georgetown H.E.C. Chairman Graham Farnell.

Civic greetings were extended by Mayor Armstrong, and following the dedication of the new building by Rev. A. J. Calder, President of the Georgetown Ministerial Association, brief congratulatory addresses were made by Stanley Hall, M.P.P., Halton; D. P. Cliff, Ontario Hydro Commissioner and O.M.E.A. Secretary-Treasurer; W. J. Wylie, Toronto, representing the A.M.E.U.; D. B. Ireland, Consumer Service Engineer, Toronto Region, Ontario Hydro, and Stanley Allen, Warden of Halton County.

Inspect Building

Following a brief social period,

(Continued on page 20)



◁ SPARKLING snow provides a bright setting for Georgetown's new Hydro headquarters.

EXPANDS



ONTARIO Hydro Commissioner Lt.-Col. A. A. Kennedy, assisted by Mayor J. T. Armstrong (left) and Chairman A. G. Farnell, officially opens the new building. Looking on (left to right) are: Commissioner E. W. Binkley, Mrs. O. W. D. Reid, Secretary-Treasurer; Superintendent G. W. McCallum, Rev. A. J. Calder; Ontario Hydro Commissioner D. P. Cliff; W. J. Wylie, Toronto; D. B. Ireland, Consumer Service Engineer, Hydro's Toronto Region; S. L. Hall (M.P.P.-Halton) and Warden Stanley Allen, Halton County.



JUDGING by their expressions as they start a business session, members of the Georgetown Commission are well pleased with their handsomely-furnished board room on the main floor. Left to right are: Mayor Armstrong; Chairman Farnell; Commissioner Binkley; Mrs. Reid, Secretary-Treasurer, and Superintendent McCallum.



△

MEMBERS of the clerical staff, Evalonne de Forest (left) and Norma Smith are shown at work in the general business office.

A MEMBER of the operating staff, Mac Errington, checks a meter in the modern meter room of the new headquarters building. ▷



CAN LOCAL UTILITIES PROMOTE ADEQUATE WIRING?

(Continued from page 13)



cluding fixtures to approximately 15 per cent of the value of the contract price.

14. Question: Mr. DeMers, what does the Electrical Contractors Association feel is needed to sell adequate wiring and rewiring locally? **Answer:** (1) A provincial policy to determine broad programs of market development; (2) A provincial policy statement directed to the electrical industry that Ontario can produce the power to supply all the appliances the industry can produce; (3) The delegation at every local commission level of some one person to maintain liaison on a broad scale with the Electric Service League and with local industry groups; (4) More utility advertising in all its forms on the need for adequate wiring and rewiring; (5) Planned programs of showings of adequate wiring films at the local levels to schools, clubs, church groups, contractor groups; (6) Selective programs of direct mailings to their consumers on: (a) the advantages of electric cooking; (b) the advantages of electric water heating; (c) the conveniences of electric kitchens and laundries; (d) the advantages in electrical modernization of wiring systems; (e) a specific electrical safety program in co-operation with local groups such as fire departments, chambers of commerce, electrical contractors, lending institutions — example; free, safe-wiring inspection program; (f) sales advantages (directed to commercial establishments of good lighting); (g) the advantages of good lighting in industry (worker morale, etc.); (h) residential 100-amp. campaign directed to all new house buyers; (j) Live Better Electrically shows in co-operation with appliance dealers.

15. Question: Mr. Foy, can the Electric Service League be of assistance to any commission in promoting adequate wiring? **Answer:** The primary reason for the existence of the Electric Service League is the promotion of safe and adequate house wiring. We prepare layouts on builders' drawings, both private and professional, showing proper locations of lighting and receptacle outlets, number of circuits and service capacity required. We can, within the limits of our staff and budget, supply people to talk and show films to service clubs and other organizations; provide mats or cuts for advertising purposes; prepare and provide suitable literature for mailing and hand-out purposes. At local fairs and exhibitions the utility will provide the required space in which we set up a display and with the assistance of utility staff and local contractor groups we man it for the period of the show. We are ready to assist the local commission in any way possible. ■

Owen Sound Utility Departments Double Size

The water and electrical departments of the Owen Sound Public Utilities Commission have almost doubled in size in the past 10 years, Lt.-Col. A. A. Kennedy, Chairman of the Owen Sound P.U.C. and Ontario Hydro Commissioner, told an Owen Sound radio audience recently.

In the past decade, Lt.-Col. Kennedy said that he had seen the combined capital of the electrical and the water departments increase to $1,688,000. During 1955, the combined revenue for the departments amounted to $634,000, which did not include an additional $43,000 of work chargeable to others. He paid tribute to the General Manager, Robert Butter, and to Richard Neath, Superintendent of the Water Department, and Alex McLinden, Superintendent of the Electric Department, and said the "city has a group of men and women who would be difficult to replace."

GEORGETOWN EXPANDS

(Continued from page 19)

guests inspected the attractive, split-level structure. Combining many of the latest structural and architectural features, the new building occupies a dominating and convenient site in the community. The main entrance provides easy access to the main business office on the first floor. Private offices and a board room are also located on this floor.

Loading platforms and garage facilities for the commission's trucks are provided at the rear of the building, and ample storage space is also available for equipment, such as tools, transformers and cable reels. Superintendent G. W. McCallum's office, a meter room and additional storage room, as well as shower facilities for linemen, are located on the upper level. An elevator facilitates movement of heavy equipment between floors.

—by Frank C. Wood.



△

SITUATED near the confluence of the Ottawa and Mattawa Rivers, the venerable hydro-electric station is still in active operation.

PIONEER PLANT

ROLAND BELANGER, Mattawa, checks the 600-kilowatt unit in the privately-owned Mattawa Electric Light and Power Co. plant.

▽



BUILT in 1894 and believed to be one of the oldest hydro-electric generating stations in Ontario, a small power plant at Mattawa, Ont., is still helping to meet the demands of the Commission's customers.

The history of this picturesque plant is an interesting one, dating back to the days when the area's first settlers arrived on the scene to develop new country. A group of these pioneers, including A. F. Hurdman, Dr. C. W. Haentschel, Robert Shanks, Henry Timmins, Alex Ross, Sr., and J. W. Hardwood formed the Mattawa Electric Light and Power Company in 1894. The group constructed a dam and powerhouse on a site formerly occupied by a sawmill on the Mattawa River —a tributary of the Ottawa—near the outskirts of the community.

Appropriately enough electric lights were turned on for the first time in Mattawa on Christmas eve, 1894.

The power station's original generator was in operation until 1912, when it was replaced by a 200-kilowatt unit, this, in turn giving way in 1937 to a 600-kilowatt unit, which is still in service.

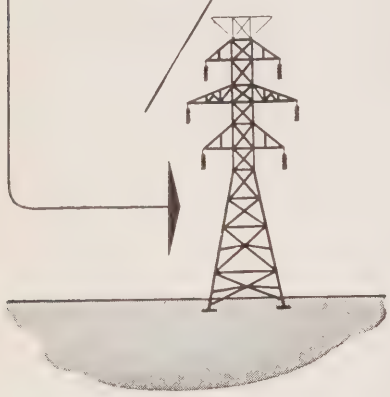
In January, 1953 Ontario Hydro purchased the company's distribution lines, and entered into an agreement to purchase all the power generated by the plant. Albert Hurdman is President of the Mattawa Company, which is still operating under its original charter, and assisting him are three men, who are employed on round-the-clock shifts.

It is of interest that although Mattawa is probably one of the oldest hydro-electric plants still operating in Ontario, it was not the first station built in the province. This distinction fell to Georgetown in 1888 (see "Georgetown Expands"—page 18). In that year the late John R. Barber became the first to effect the transmission of hydraulically-generated electricity when he transmitted power from a dam to his woollen mill near Georgetown, two miles distant. This energy was used at the mill both for power and light, and is believed to have been the first *"long-distance"* transmission line in the world.

Ontario Hydro lines now extending for hundreds of miles across the province indicate the big advances made in electrical transmission since the days of the Georgetown and Mattawa pioneers.

By Frank C. Wood.

ALONG HYDRO LINES



Galt Leases Hydro Shop

Galt Public Utilities Commission has leased a large portion of the first floor of its main office to the Canadian Department of Public Works for a five-year period. The leased area was previously used as a Hydro shop for the sale of electrical appliances.

Prescott Announces Rate Reductions

Hydro customers at Prescott will enjoy reduced electric bills. Prescott Public Utilities Commission recently announced that it would introduce a downward revision of rates effective, January 1, 1957. The utility has adopted the new municipal rate structures in conjunction with this rate decrease, which will reduce overall revenue by some 15 per cent. The utility also announced a five-day week for employees. Commission offices will remain open until 5.30 p.m. from Monday to Friday, and will be closed on Saturdays.

BRANTFORD SECRETARY-TREASURER RETIRES



E. L. GOTHARD

A long and active career of service with Brantford P.U.C. concluded recently with the retirement of E. L. Gothard, Secretary - Treasurer since the formation of the utility 21 years ago. Mr. Gothard was associated with the Brantford Board of Water Commissioners for five years before it was incorporated as a department of the public utilities commission, which was created in 1935.

Active in A.M.E.U. affairs, he served on the Board of Directors of the Western Accounting and Office Administration Committee for many years. He is an artist of some note and has been described as one of the contemporary painters of the Bruce Peninsula area where he has spent several summer vacations.

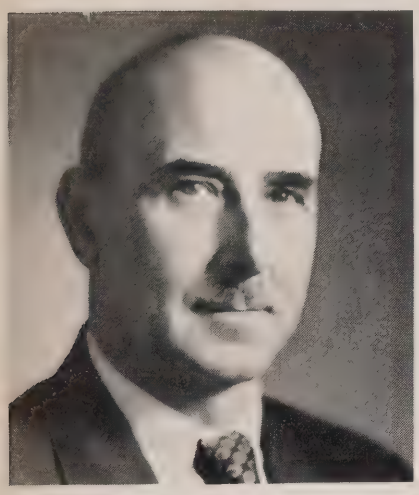
Mr. Gothard will be retained in a consulting capacity for an additional four months. The present General Manager, N. A. Grandfield, also has been appointed Secretary succeeding Mr. Gothard, while Miss Margaret E. Muir has been named Assistant Secretary. Other appointments announced at Brantford include J. S. Gillespie as Chief Accountant and Robert A. Ion as Service Manager.



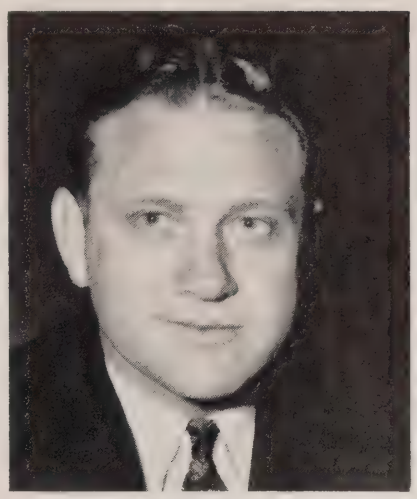
GUELPH HONORS VETERAN EMPLOYEES

EIGHT employees of the Guelph Board of Light and Heat Commissioners, with a combined total of 238 years' service, were honored recently with the presentation of wrist watches. In the photograph above Chairman A. J. Girdwood and Mayor Harold Suitter (left) present the watches to (seated, left to right): Joseph Heeg, retiring after 48 years' service; Miss Frances Heeg, 43 years' service; Wesley Boulding, 36 years; (standing, left to right): Joseph Bodycott, 25 years; John Peters, 35 years; Alex Zinger, 28 years; General Manager, W. J. Bishop, 39 years, and James G. Gow, Secretary-Treasurer, 29 years. Copies of the Golden Jubilee issue of *Ontario Hydro News* were presented to Dennis Jones, President, Local 548, International Brotherhood of Electrical Workers for distribution to each employee.

HYDRO NAMES NEW DIRECTORS



H. H. LEEMING



W. H. EDWARDS

APPOINTMENT of H. H. Leeming as Director of Engineering effective April 1, 1957, upon the retirement of the present Director, F. H. Chandler, was announced recently. W. H. Edwards has been named Director of Frequency Standardization succeeding Mr. Leeming. Mr. Edwards was formerly Operations and Materials Control Engineer of the Frequency Standardization Division.

In announcing the new appointments, G. D. Floyd, Assistant General Manager-Engineering, said that Mr. Leeming had been employed by the Commission for 38 years, and has had "extremely wide experience in many engineering branches of the Commission's activities, both technical and administrative." Mr. Leeming joined Hydro's Construction Division in 1918, and subsequently held various positions in the Electrical Engineering Department, including Draughting, Assistant Engineer, Station Design, Resident Electrical Engineer at the Cameron Falls development and System Planning Engineer. His capable service was further recognized in 1947 when he was named Manager of the Northeastern Region.

Mr. Leeming was named Director of Frequency Standardization the following year, and played a leading role in planning and organizing Hydro's frequency standardization program. He will assist the Director of Engineering until Mr. Chandler retires in April. He is a member of the Association of Professional Engineers of Ontario, American Institute of Electrical Engineers and the Engineering Institute of Canada.

The appointment to the responsible position of Director of Frequency Standardization marks an important milestone in Mr. Edward's lengthy service with the Commission, which commenced in his undergraduate years at the University of Toronto. After receiving his degree in electrical engineering in 1929, he joined Hydro as a junior engineer in the Eugenia District of the Georgian Bay System. His service has been continuous, except for a short term as a sales engineer with a private firm in 1931-32.

Mr. Edwards has held the positions of Assistant Engineer, Line Superintendent and District Operating Superintendent at Hamilton, Toronto, Belleville and Smiths Falls respectively. For the last year before joining the Frequency Standardization Division he was Special Assistant to the Manager of the East Central Region. He was named Coordinating Engineer of F.S.D. in 1949. ■

Established Long Service Record

C. A. Waterous, a prominent professional engineer and citizen of Brantford, died at his home recently. A former member of Brantford Water Commission, he established a local record by serving from 1917 to 1944 on the Brantford Public Utilities Commission with the exception of one year when illness forced him to temporarily suspend his association. For several years he was Vice-President and General Manager of Waterous Ltd.

Start Construction Of Walkerton Building

Construction of a new office building for Hydro's Walkerton Operating Area was started recently. Norman Belfry, Area Manager, has announced that the building will be a one-storey, 40 ft. x 47 ft. structure following the standard plan used for such Hydro buildings in other centres. It is anticipated that the building will be ready for occupancy in late spring or early summer of this year.

Completes 41 Years' Service

On September 30, 1915, Milverton formed a Hydro-electric commission, and the village council appointed A. C. Clemens to serve as a commissioner until the next municipal election. Today almost 42 years later he is still serving as manager and secretary of the local utility.

Fergus P.U.C. Builds Garage and Warehouse

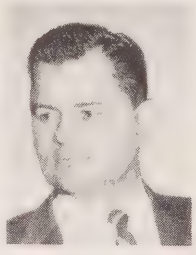
Completion of a new garage and warehouse at a cost of $11,000 was recently announced by Fergus P.U.C. With a floor area of 2,200 feet, the building is of cement block construction. Hoisting equipment and wiring were installed by the utility staff under the direction of Superintendent C. A. Graham.



PROUD OF NEW LINE TRUCK

PICTON Public Utilities Commission recently purchased a new truck with a line body and a pole-master hydraulic derrick. Members of the utility staff, with Manager H. C. Blakely, left, watch a demonstration of the new equipment. Included in the group are Line Foreman Peter Mitchell, G. E. Mason, Waterworks Foreman; Alton Bongard, and Jerry Miller, linemen; Dennis Cooper, meter tester, and C. Vesterfelt, lineman.

Hydro Engineer On A.P.E.O. Executive



G. M. McHENRY

Gordon M. McHenry, Consumer Service Engineer, Western Region, has been elected a Councillor to represent the Electrical Engineering branch of the 15,000-member Association of Professional Engineers of Ontario. He also served in this capacity in 1954. The association elects two councillors annually to represent each of the five branches of engineering. The association serves as the licensing body for the province's engineering profession.

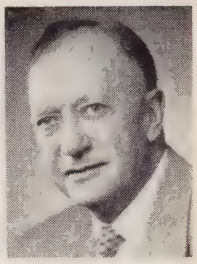
Mr. McHenry graduated from the University of Toronto in Electrical Engineering in 1940. He served for eight years with the Canadian General Electric Company before joining Ontario Hydro in 1948. He was appointed to his present position in London in 1953.

John H. Fox, P. Eng., O.B.E., Toronto, was elected President of the A.P.E.O. He is a graduate of the University of Toronto in Mechanical Engineering. Also elected to the executive were 1st Vice-President, Charles T. Carson, Walkerville, and 2nd Vice-President Walter J. Gilson, Toronto. The annual meeting of the association was held January 26 in Toronto.

Former Hydro Engineer Dies At Niagara Falls

Samuel W. Andrews, head of the consulting engineering firm of H. G. Acres Company, died suddenly at his home in Niagara Falls recently. Mr. Andrews joined the Ontario Hydro staff at the end of World War I, and as mechanical superintendent was associated with the construction of the Sir Adam Beck-Niagara Generating Station No. 1. In 1925 when the late Dr. H. G. Acres formed the H. G. Acres Co., Mr. Andrews was named Chief Engineer, a position he held until 1945 when he became President.

Former Director of Engineering Passes



J. R. MONTAGUE

John R. Montague, one of Canada's foremost hydraulic engineers and Ontario Hydro's Director of Engineering from 1948 to 1956, died on January 9 in Toronto after a lengthy illness. During his 36 years with the Commission, Mr. Montague was associated with the design of many of its hydro-electric plants and other associated engineering projects. His election in 1955 as President of the Association of Professional Engineers of Ontario, was a highlight of an eminent career.

Mr. Montague joined Hydro in 1918, four years after his graduation from the University of Toronto, and with the exception of a two-year period, 1918-1920, he served continuously until his retirement on September 30, 1956. During his eight-year term as Director of Engineering, he was actively identified with Hydro's important postwar expansion program, including construction of the Niagara and St. Lawrence developments. In May, 1956, he became a consultant, and worked with Dr. Otto Holden, Chief Engineer, until his retirement. The deceased, who is survived by his wife and one son, Edward, was a member of the Engineering Institute of Canada, the American Institute of Electrical Engineers and an executive officer of the Electric Club of Toronto.

This and That

Concrete Facts

A recent article in the *Toronto Globe and Mail* pointed up how concrete touches the life of practically every Canadian. For instance, as the article indicates, it would have been impossible for Hydro to construct its numerous power dams without concrete. Incidentally, cement — an essential ingredient of concrete — has an interesting history. The inventor of Portland cement — Joseph Aspdin, an English bricklayer — developed a high grade natural cement early in the 1800's, naming it Portland because of its similarity to a type of building stone found near Portland, England. Many years earlier, however, an English engineer, Joseph Smeaton had built the famous Eddystone lighthouse of a cement-like substance. The first cement manufacturing works was established in England in 1825 by James Frost.

Civic Progress — Plus

We were grateful to Mayor Harold Schneider of Port Dover for his invitation to attend a triple ceremony in that progressive community a few weeks ago. Typical of the growth evident in so many Ontario municipalities today, the ceremony marked the official opening of a newly-surfaced main street by Hon. James N. Allan, Ontario's Minister of Highways; sod-turning at the site of Port Dover's Hydro substation, and the laying of a cornerstone for an auditorium at the local public school. From all reports, it was a busy and successful day. Port Dover claims the distinction of being "the home of the world's largest fresh-water fishing fleet." We sampled some Port Dover fish when Superintendent Aaron McKnight opened his new utility building in 1955. While we can't vouch for the size of the fleet, we can certainly recommend the quality of the fish and the way Port Dover cooks prepare them.



To demonstrate to its employees the components and operation of a transformer, one manufacturing company developed this metal model. The young ladies have removed the cover and its bushings and have untanked the core and coil for a closer peek at the model which is used for shows and demonstrations.

Weather Forecast

Another note of thanks and congratulations to Advertising Manager Wm. Sutherland of Canadian Line Materials Limited who sent us a copy of an interesting booklet entitled "How to Forecast the Weather." The contents are copyrighted so we'll confine our cribbing from this interesting little booklet to the fact that "good weather usually comes from NW, W and SW winds. Winds from NE, N and S bring bad weather."

More Predictions

Confident, perhaps, that they won't be around to bear the brunt of any jokes, some prominent industrialists recently set down their predictions for the next 100 years. These forecasts are to be sealed in a cornerstone and opened in 2056. They see us travelling by air at 10,000 miles an hour; harnessing electric power from the sun and the tides: watching transatlantic television, and wearing bathing suits of stretchable paper — as if many of them weren't flimsy enough now. If a similar group had made predictions in 1856, who, asks the *Philadelphia Bulletin*, "would have foreseen frozen blintzes and blueberry pies, or women senators and $2-an-hour handymen?"

Photo-Television

Perhaps the 2056 predictions weren't bold enough. Even now the Bell Telephone Company is looking forward to the day when picture-telephones will be in use. This is a modified form of television by telephone — the signals which carry the picture can be sent out over ordinary telephone lines.

New Addresses

O. S. Luney, Manager of Hydro's Eastern Region, has advised that he and his staff have moved to the Commission's new building at 497 Richmond Rd. in Ottawa. The new headquarters accommodates the entire regional staff, including those formerly located at 109 Bank St., 227 Laurier Ave. W. and the Inspection personnel formerly accommodated at 239 Argyle St.

Harry Foy, energetic Manager of the Electric Service League of Ontario, has announced that the League offices have moved to 191 College St., Toronto 2B.



NIAGARA ICE BRIDGE

ONTARIO HYDRO News

MARCH, 1957

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FOUR-LEGGED GIANT

ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
620 UNIVERSITY AVENUE, TORONTO

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MARCH, 1957

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RAISE THE STANDARDS

THIS column last month made reference to the pervasive role of electricity in the daily life of the average Canadian, and the contribution of Canadian electrical utilities to the nation's progress and development in the past half-century.

But what of the future? The first observance of National Electrical Week across Canada this year directed attention to the many amazing applications of electricity being developed to increase productivity and efficiency in industrial plants and offices. Many speakers, too, looked into the crystal ball to predict a whole galaxy of new appliances that promise to have a revolutionary effect on the average home.

It is entirely possible that homes of the future will be lighted by electro-luminescent panels in the walls and ceilings. Sleepers may not require blankets, which will be replaced by a heat-producing canopy over the bed. Television sets possibly will make use of a principle known as light amplification. Instead of a large picture tube in a bulky cabinet, thin screens will hang from the walls of various rooms, and controls will be installed in a cigar-box size cabinet. One engineer believes it may be possible to develop an electro-static wand. The housewife would merely wave this wand over a dusty table, floor or other furniture and all the dust, within a radius of several feet would be picked up.

The foregoing examples serve to strengthen the general belief that electricity is destined to make an even greater impact on daily living in the future than it has in the past. Hon. Robert Winters, Canada's Minister of Public Works, in addressing a large Toronto audience during the observance of National Electrical Week last month (see page 5), made the prediction that "the total consumption of electric power (in Canada) can be expected to double within the next 10 years, and some suggest that demands may even treble by 1975."

However, it will be of little avail for manufacturers to increase the scope and efficiency of electrical products, or for utilities to expand their systems, unless the average electrical user—and particularly the domestic customer—is made aware of the paramount urgency of improving the wiring system of his premises. J. F. Kerr, Chairman of the Adequate Wiring Committee, Canadian Electrical Manufacturers Association, was quoted in our February issue as saying that "the serious national problem of obsolete and overloaded wiring systems exists today in three out of four Canadian homes."

Mr. Kerr, in describing this as a "serious problem" is not overstating the case, for inadequate wiring, besides impeding the installation of additional comfort-producing and labor-saving devices in homes and other buildings, represents a potential threat to human safety that must be eliminated as rapidly as possible.

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COVER SHOTS

FOUR huge gantry cranes are now in operation at the site of Ontario Hydro's St. Lawrence powerhouse. Erection of the fourth giant lifting machine, depicted on our front cover this month, was completed recently. The 85-foot monster, which is 25 feet higher than its other downstream partner, will be used in placing concrete as well as for turbine erection.

Our back cover photograph, with its promise of spring, depicts a peaceful rural stream north of Kingston.



ALL round the room my silent servants sit,
My friends in every season. BRYAN WALLER PROCTER

THESE are some of the "silent servants" of H. Borden Clarke, Morrisburg book dealer, who, in the course of some 30 years in the business, has built up a library of over 100,000 volumes. Mr. Clarke operated his business near Morrisburg until recently when he vacated his handsome old United Empire Loyalist farm home to make way for the St. Lawrence Power Project. Now living in Morrisburg, he already has "re-opened for business," although Hydro's rehabilitation engineers are still engaged in the challenging task of transferring his vast library (see page 12).



TAMING



A TORRENT

Engineers and construction men are diverting the St. Lawrence River from its centuries-old course over the famed Long Sault Rapids

A SPECTACULAR attraction for generations of travellers and tourists, the St. Lawrence River's famed Long Sault Rapids are destined to disappear in the near future.

Changing the course that a river has followed for many centuries is a formidable task, and the St. Lawrence, at this point, has an average mean flow of 72 million gallons a minute (192,000 cubic feet a second). With all its challenges, the taming of these turbulent waters represents, to engineers and construction men, another vital and inevitable phase in the mammoth job of completing the international St. Lawrence Power Project.

Actually this "tricky" operation is a necessary preliminary to construction of the second stage of the Long Sault dam—a 2,250-foot curved axis structure. The dam is an important, permanent installation that will have a prime role in directing water into the headpond area above the adjoining, Ontario Hydro-New York State Power Authority powerhouses of the 1,640,000-kilowatt St. Lawrence development.

A sturdy, rock-and-earth cofferdam will block the flow through the rapids section, according to present schedules. This temporary structure will divert the water into a wide, man-made channel — excavated through Long Sault Island at an oblique angle to the present "rapids" channel—and thence into the river's south channel. This excavation through the island will carry 80 per cent of the flow of the entire river, while the remaining flow passes down the south channel, a portion of which is diverted through the Massena Diversion Canal in New York State.

Some 210,000 cubic yards (nearly 400,000 tons) of rock and other material will go into the 1,400-foot cofferdam at the head of Long Sault Rapids. The cofferdam will extend from the buttressed bank of the present ship canal on the Canadian side of the river to Long Sault Island.

Spectacular Pattern

Construction of the cofferdam has been in progress for the past three months or more, and follows a rather spectacular pattern as the rock and material are dropped from a 25-ton "rock skip." This large bucket travels on a cable suspended from two, tall steel towers, standing on either side of the river above the rapids. As this material is dumped on the bed of the river, another turbulent series of rapids are developing at this point. Meantime an increasing volume of water is beginning to flow through the new Long Sault Island channel. This entails the gradual removal of an 1,100-foot plug at the head of the "cut." Opening of the plug, and construction of the cofferdam must be carefully integrated to ensure that water levels in the river are maintained for the Cornwall Canal, and to supply water for downstream communities and

(Continued on page 4)

THIS CABLE suspended between two steel towers on the Canadian shore (left) and Long Sault Island (right) carries the 25-ton "skip," which is dumping rock and material on the river bed for the 1,400-foot cofferdam.



WORK is advancing rapidly on the upstream cofferdam (A) at the head of Long Sault Rapids (B) to divert the flow into a new channel (C) through Long Sault Island (D), thence into the south channel and through the completed first section of Long Sault Dam (E). This will permit work on the remaining section of the dam to proceed in the north channel (F).

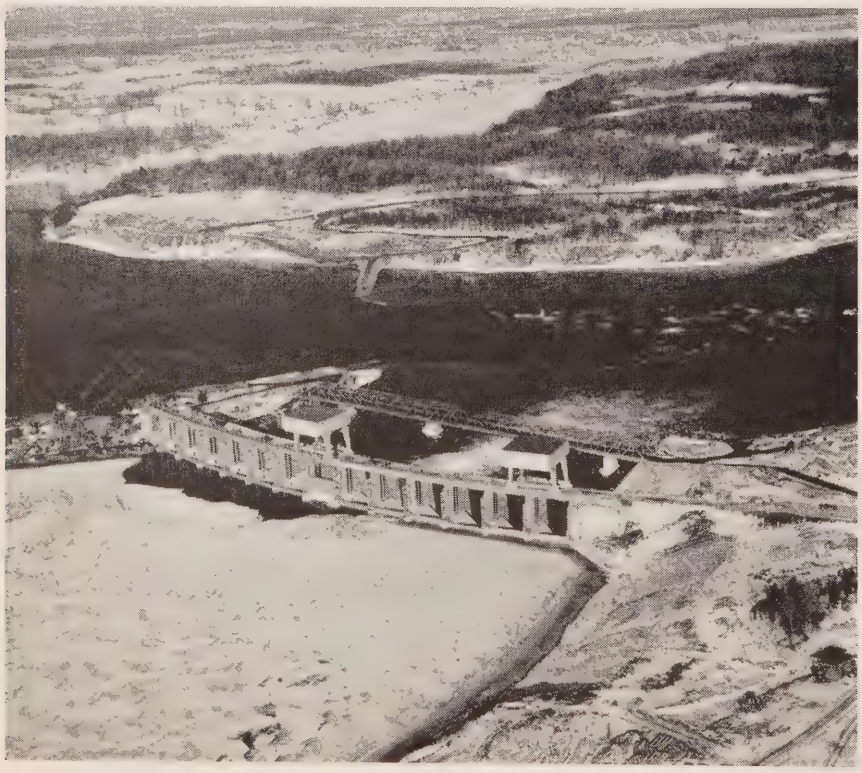


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ROCK placed on the river bottom is creating another spectacular set of rapids in the turbulent north channel of the St. Lawrence.

AERIAL view of the upstream side of the completed first section of the Long Sault dam (foreground). Construction of the downstream cofferdam, which extends from the far bank of the north channel of the St. Lawrence River (centre), is now in progress.

▽



industries in both Canada and United States.

This operation (which is being handled by a construction firm under contract with the Power Authority of the State of New York, Ontario Hydro's St. Lawrence power partner) follows a co-ordinated sequence. The diversion procedure was evolved through painstaking studies conducted by Ontario Hydro engineers on the Commission's St. Lawrence hydraulic models at the A. W. Manby Service Centre near Toronto.

Before the rapids are entirely exposed, however, it will be necessary to build a downstream cofferdam from the end of the completed first section of Long Sault dam to the head of Barnhart Island. Then the remaining water (between the upstream structure and this second cofferdam) will be pumped out, and work will proceed on the second stage of the permanent dam.

Shooting The Rapids

The "dry-up" of this scenic spectacle will recall for many Canadians the thrilling experience of "shooting" the torrent aboard the "Rapids Prince," which carried passengers between Kingston and Montreal.

Miss Isabella Farlinger, 90-year old resident of Morrisburg, asserts that her great uncle, Thomas Farlinger, as Captain of the "Rob Roy," was the first man to pilot a steamboat through the rapids in 1843. Miss Farlinger's claim, which is substantiated by a letter written by Capt. Alex Cameron, and published in a Montreal newspaper in 1893 (a copy of which is in Miss Farlinger's possession) is in conflict with an interesting story by Clifton Johnston in his book "The Picturesque St. Lawrence (published in April, 1910). Mr. Johnson states that "The first large boat to attempt the passage of the Long Sault was the 'Ontario' built about the year 1840 at the upper end of the lake of the same name. Her speediness attracted the attention of some Montreal men, who bought her for a mail boat to ply between that city and Quebec. Then they grappled with the problem of getting her down to Montreal. No craft of anywhere near that size had ever attempted to run the Long Sault; but they secured for the hazardous undertaking two Indians, known as "Old Jock" and "Old Pete," the best pilots on the river. The owners promised them one thousand dollars each if they accomplished the enterprise successfully.

"To test the depth of the water a crib was made—forty feet square with cross pieces ten feet apart, and having stakes ten feet long projecting at frequent intervals from the bottom. Several Indians towed the crib out into the stream at the head of the rapids and let it go. Meanwhile a number of other Indians had been stationed in trees along the riverside to watch the crib's progress, and still others were stationed at the foot of the rapids where they caught the crib when it reached the quiet water. The crib

(Continued on page 26)

MORE POWER · BETTER WIRING

Hon. Robert Winters advocates national campaign to improve wiring standards during "Canada's Electrical Day" address

CANADA'S consumption of electricity can be expected to double or treble during the next 20 years, and will be the electrical industry's greatest challenge, Hon. Robert Winters, Canadian Minister of Public Works, said in an address to the Canadian Electrical Council and the Electric Club of Toronto at a recent joint luncheon.

Marking the first observance of National Electrical Week in Canada, the gathering was held at the Royal York Hotel, Toronto, on February 13, which had been designated as "Canada's Electrical Day." James S. Duncan, Chairman of Ontario Hydro, introduced the guest speaker at the luncheon, which was attended by some 400 representatives of the electrical industry.

Expressing his pleasure at being present, Mr. Winters, who is also an electrical engineer, said this was the first occasion that he had been privileged to meet a group representing "the full sweep of the industry." In his position as Minister of Public Works, the speaker pointed out that he was particularly close to electrical matters pertaining to housing, for which he was responsible to Parliament.

"Within the past few decades," said Mr. Winters, "electricity has altered the very fabric of home life." Every member of the family, from the head of the house to the youngest member, sometimes forgot the enormous power available at the flick of a switch. They realized their dependence on electricity only when service was interrupted. "Nothing, for example, prompts a question in the House of Commons quicker than the failure of an electric circuit, which stops a clock, an elevator or even a hearing aid."



△ HYDRO Chairman James S. Duncan introduced the guest speaker, Hon. Robert Winters, Minister of Public Works (right) as "a man with a past of distinguished service to his country."

Mr. Winters wholeheartedly commended the action of the Canadian Electrical Council in inaugurating Canada's first National Electrical Week — a time, he felt, for reassessing the position and the needs of the electrical industry. It provided an opportunity, too, for focusing public attention on the contributions of electricity to daily living, and, equally important, on the responsibilities the age of electricity had brought.

Safeguard Public

As representatives of the industry, the Canadian Electrical Council had a duty to safeguard the public, not only by informing people of the benefits, but also of the dangers inherent in the consumption of electric power, the speaker continued. In the marketing and manufacturing fields Mr. Winters suggested a review of production and distribution methods.

Referring to the recent report of the Royal Commission on Canada's Economic Prospects (the Gordon Commission), Mr. Winters expressed the view that the development of power resources was one of the most interesting sections of the report. The Gordon Commission, he said, had concluded that there would be a steady increase in total energy consumption over the next 25 years.

Consumption had been rising sharply since the end of the war, the speaker pointed out. The over-

(Continued on page 26)

Lake Huron's GOLDEN GATE

RADIATING FROM ITS UNIQUE OCTAGONAL MAIN SQUARE, THE INFLUENCE OF GODERICH EMBRACES A WIDE AREA

by Horace Brown



△

CENTRED by an octagonal main square, with eight streets radiating in various directions, Goderich resembles a giant wheel.

ONCE, it is related, a Scottish visitor left the Hotel Bedford in Goderich, and set out for a walk along the main street. The stranger started at a brisk pace, but, as he walked, his legs began to tire. His impression that he was in a city of immense size was further confused by the fact that he noticed the same names on business enterprises time and time again. Goderich, he thought, must be owned by a small group of citizens. Finally, near exhaustion, he came back to about the 12th Hotel Bedford he had passed, decided it was the hostelry at which he was registered, and went within to complain to the host.

"It's a lang street," said the Scotsman, as he collapsed into a convenient chair, "an' I ne'er kenned a toon wi' sae mony o' the same name to be set up in business."

The Scotsman's bewilderment is understandable. Goderich is unique among Canadian towns with its main street circling an octagonally-shaped square. Radiating from this square are eight streets: North, Colborne, West, Montreal, South, Kingston, East and Hamilton, which project into the outer sections of the community. Resembling spokes in a giant wheel, these 100-foot wide thoroughfares form the principal traffic arteries for the progressive municipality, which covers an area of some 1,300 acres and boasts of a population of approximately 6,000.

Seat of Huron County, Goderich claims, with considerable justification, that it is the "prettiest town in Canada." It is strategically situated 145 miles due west of Toronto, 63 miles northwest of London, and some 180 miles north of Detroit, Michigan. Because of its fine harbor, it has, for years, been a main storage and trans-shipment point for a golden stream of wheat from the prairies, which explains the frequent use of the title, "Lake Huron's Golden Gate."

Goderich is also noted for the longevity of its citizens. It is recorded that a visitor, strolling through Maitland Cemetery, and noting the ages inscribed on the tombstones, remarked that "The climate here seems to be hard on centenarians."

Yet, paradoxically, Goderich is a young man's town. The average age of the executives of local industries is 38.

These industries, in themselves, are an indication of the town's diversified economy. The harbor, of course, affords deep anchorage for the wheat-laden freighters, and large grain elevators store what they carry. The lumbering industry and its products provide much employment. For years, Goderich has been in-

ternationally-famous for its salt. There are textile, fountain pen and pencil, and road machinery plants. Goderich also makes steel fishing boats, and, at one time, a plant turned out world-renowned organs, but this industry is now closed. All of the existing plants depend upon a constant supply of power to remain in operation.

Indian Territory

As is the case with so much of this storied part of Canada, and as related by Victor Lauriston, well-known Canadian author and long-time resident of Goderich, *Samuel de Champlain* was the first white man to visit the area. In 1618, he landed at the mouth of the Menesetung River (variously translated as "healing water" and "laughing water"), and saw this land of the Huron Indians, which was north of the territories of the prosperous Erie tribe. After the great explorer had left, an alliance was concluded between the Iroquois and Hurons, who proceeded to destroy the Eries. A dispute arose between the victorious allies, and the green land of the Hurons was tinged red with the blood of braves for a century thereafter. Gradually, as the Hurons were decimated, the hardwood forests crept back over the blackened remains of their villages. The explorer, La Salle, is said to have built a fort at the mouth of the Menesetung, but there is no existing proof for this story.

Two centuries later, the United Empire Loyalists began to settle along the shores of Lake Ontario.

On a spring day in 1826, laden canoes landed at the mouth of the Menesetung. They belonged to W. F. Gooding, an American, and a French-Canadian named Ducharme, who had formed a partnership to trade with the Indians. They built their trading-post on the wide flats at the head of the river, and Gooding renamed the river "Maitland," in honor of Sir Peregrine Maitland, then Lieutenant-Governor of Upper Canada.

Then the shadow of a remarkable man crossed the path of the future Goderich—John Galt, author, traveller, and companion of Lord Byron on the journey that influenced Byron to write "Childe Harold's



Pilgrimage." In 1823, British Chancellor of the Exchequer, Mr. Robinson, later to become Lord Goderich, drew Canada and its resources to the attention of Galt. Galt's imagination was fired by the chancellor's description of the opportunities available across the ocean, and he was instrumental in forming the historically-famous "Canada Company." The government gave the Canada Company 40,000 acres to settle, and the company purchased a further million acres in the London district at a shilling and threepence an acre . . . a sum that would scarcely buy a square inch of most of the land today.

Galt came to Canada in 1826, made his headquarters at the growing inland town named in his honor, and began to consider the best means of developing the Canada Company's vast domain. He became particularly interested in the wilderness that ran from the new townsite of Guelph, which he had just laid out, to the shores of Lake Huron.

Into the picture, now, stepped a fantastic figure of a man, Dr. William (Tiger) Dunlop, a Scottish military surgeon, who had served in the War of 1812-1814 and in India. It was in the latter country that he had earned his soubriquet. As a member of a boating party on the Ganges River, Dr. Dunlop threw his snuff-box in the face of an enraged tigress, and then killed the animal with his sword. Henceforth, he was known as "Tiger."

Tiger Dunlop was Galt's "warden of the forests." Galt assigned him the job of taking axemen and chain-bearers into the wilderness and hewing out a townsite from the Huron Tract, one preferably with a good harbor on the great lake. Galt took an overland route, and the two met in the log house Dunlop had built, near the present site of Goderich, to drink to the success of their venture.

The unique plan for the townsite of Goderich, so named in honor of Galt's patron, Lord Goderich, was devised by Galt. The story that the plans for Guelph and Goderich were interchanged accidentally still is given credence by some modern-day Goderich citizens, although there is support for the theory that it was actually the names that became transposed.

John Galt was too good a master to suit the executives of the Canada Company, and he was recalled to London in 1832, but not before he had contributed greatly to the development of Canada and particularly Upper Canada. Infuriated by Galt's dismissal, Tiger Dunlop broke with the new officials of the Canada Company, who had earned for the concern the contemptuous name of "The Family Compact." Dr. Dunlop and his brother, Captain Robert Dunlop of the Royal Navy, were among the first members of Parliament elected by Huron voters.

With the passing of the Municipal

(Continued on page 8)



RECALLING the pioneering exploits of the town's early settlers is this replica of an 1875 log home, which stands in the grounds surrounding the Huron County Museum (left) at Goderich.



Act, the rule of the Canada Company ended, and Goderich was incorporated as a town in 1849. It was the good fortune of Goderich to have hard-working, ambitious English and Scottish immigrants among its first settlers. Pennsylvania Dutch and Irish left their imprint, but the Scottish influence seems to have predominated. Agriculture and shipbuilding thrived at the middle of the 19th century. Around 1866, oil drillers struck substantial deposits of salt. "Salt blocks" mushroomed throughout the countryside. The boom finally collapsed, and, while Goderich is still an important centre for this industry, salt has become just one of a number of products for which Goderich is noted.

Founded about 1870, the largest salt plant is now owned by Sifto Salt Limited, which produces some 50,000 tons of the essential sodium chloride annually from underground deposits. These deposits, it is estimated, will last 99,000 years at the present rate of hydraulic mining. Today, salt and its derivatives are used in over 14,000 different ways. It is obtained, explains Works Manager Andrew Boutilier, from a brine obtained from deep wells sunk into large salt formations. A hole is drilled to the bottom of one of these formations, and two pipes are put down, one inside the other. Water is forced down the outer pipe, dissolving the salt in the formation. The brine is then pumped up the inner pipe to the surface where it is purified, filtered, and processed by evaporation.

It is interesting to learn that boxed table salt, so familiar to all households, constitutes only five per cent of the business of the Sifto plant. The bulk of the sale goes from Goderich for industrial and manufacturing uses, such as the manufacture of chlorine or the compound used on highways during the winter months. The salt from Sifto's four wells at Goderich is 99.8 per cent pure after being refined. The staff of 65 includes a chemist, who uses electrically-operated machinery in his testing.

Actually, while there is still a considerable amount of steam power used at the plant, electricity plays a major role, with 80 motors in use, ranging from fractional to 75-hp. types. The block press, which exerts up to 550 pounds of pressure, uses a 50-hp. motor, cutting out 50-pound blocks of salt. Electric conveyors also have important uses, and there is an electrically-operated line for automatically bagging salt and filling the familiar 2-lb. household containers.

Road Machinery

At the Dominion Road Machinery Company plant, Champion diesel motor road graders, costing between $16,000 and $23,000, are manufactured on an assembly line consisting of a battery of electrically-operated tools and other machines. Snowplows, snowblowers, loaders for tractors and auxiliary equipment are among the heavy machinery produced by the firm's 150 highly-skilled workers. In 1951, for instance, it made 1,500 of its famous "Sno-Blo" attachments for tractors. The plant also produces special tools for aircraft and automotive industries.

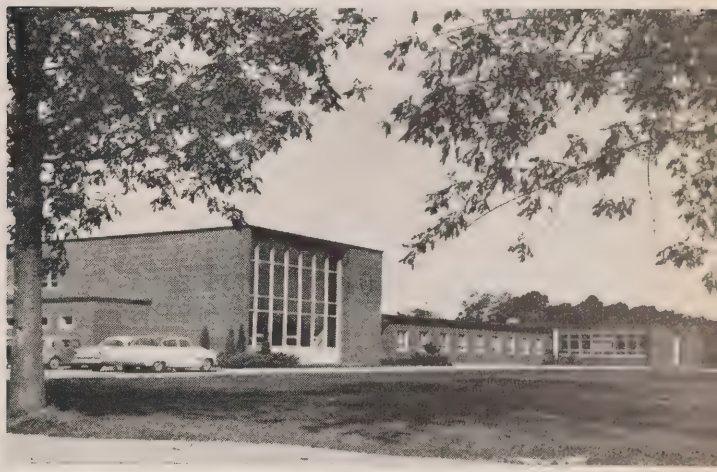
Founded in 1886, the Dominion Road Machinery Company Limited is regarded as Canada's oldest road-building machinery manufacturer. There are three plants in Goderich, making the company the largest industrial employer in the county. Its products are shipped to such countries as Brazil, Peru, Algeria, Pakistan, New Zealand and Norway.

Among the interesting types of

INCORPORATED in 1849, Goderich is widely-noted for its spacious, tree-lined streets and the architecture of its buildings.



GODERICH Collegiate Institute provides matriculation and commercial courses for approximately 425 urban and district students.



electrical equipment at Dominion is an abrasive cut-off machine. Operated by a 15-hp. motor, this machine can cut through a three-inch solid pipe of tool steel in 10 seconds. Another novel machine is the "Swedish Nibbler," which, with two pieces of tool steel and a three-hp. motor, cuts curves and angles, and performs delicate beading and flanging operations in steel.

Unique among Goderich industrial firms is the Mathieson Boat Works, where six, all-steel fishing-boats, 42 feet long with a 13-foot beam, and capable of carrying a crew of at least six to eight, are turned out annually. These boats are sold to commercial fishermen from Manitoba to Quebec. At present, the firm is experimenting with all-steel lifeboats.

The Holeproof Hosiery Company of Canada Ltd., plant, which, until 1943, was a unit of the Dominion Road Machinery firm, manufactures a wide range of men's socks. Under the management of Leo Walzak, it has an average of 60 employees.

While the latter-day weaving and finishing industry has always depended upon electricity, there is an interesting trend away from "line-shaft" machines (a sequence of machines operated by a central shaft with belts and pulleys) to those controlled by individual electric motors. Some equipment, which formerly required hand operations, is now fully - automatic. Holeproof, which has its head office at London, developed some of this equipment, and it is interesting to watch the two types at work in the plant, and to note the efficiency of the machines operated by their own electric motors. This is particularly evident in the "circular machines." each equipped with its own ¼-hp. motor, which can complete a sock in six to eight minutes. "Looper" machines are used to close the toes of the socks (the most difficult phase of the process) as if by magic. The knitting-machines have a unique electrical device to indicate trouble. These electrical "policemen" guard against yarn breakage and needle damage.

The Goderich Manufacturing Company Limited is a "home" industry, having been founded by George Thomson and purchased by the Baechler family, some 70 years ago. Dealing in lumber and builders' supplies, it is now managed by the second generation of Baechlers, four brothers—Ted, Clare, Con, and Bert. The firm, with an average of 65 on its payroll, turns out some seven million board-feet of maple, birch, basswood, oak, ash, elm and pine. Approximately 70 per cent of this firm's output goes to the United States and the United Kingdom.

The plant has expanded substantially since the end of World War II, and much new equipment has been added. The pride of the Baechler brothers are the five new dry-kilns, with a capacity of 150,000 board feet. Heated air is blown electrically through these kilns. With this circulation of air, the moisture in a one-inch board can be reduced to five or six per cent moisture content in four days, whereas, with the natural drying method, it would be a matter of luck to reduce the moisture content to approximately 14 per cent over a much longer

(Continued on page 10)

period of time. The drying is automatic, with 48-inch fans turning in one direction for four hours, and then reversing for the same period.

A $25,000 moulder, operated by four motors with a total capacity of 85-hp., can perform operations that would require the physical efforts of 100 men. All types of moulding are produced in this complex machine, which finishes the lumber from the rough state. The sawdust from this operation is drawn through pipes by electric exhaust fans and used as fuel in the steam boiler furnaces. Eventually, the Baechlers plan to electrify their entire plant, eliminating the few steam operations they have left, such as sawing.

Regarded as one of the largest timber users in western Ontario, this mill brings in lumber by truck from an area within a radius of 120 miles, giving employment to buyers, cutters, and skidders, and putting winter income in the pockets of district farmers.

From lumber to pens and pencils is a fairly long step but not in Goderich. The W. A. Sheaffer Pen Company of Canada Limited is one of the best-known manufacturers of these writing tools in the country. On January 4, 1954, the company began operation of its spanking new plant at Goderich, where 155 men and women are now employed. With a manufacturing and storage area of 36,000 square feet, the plant turns out 4,000 pens, pencils, and ball point pens a day. It also produces some 10,000 bottles of "Skrip" daily. "Skrip" has become a well-known writing fluid, but woe betide the man who refers to it as "ink."

Electrified Plant

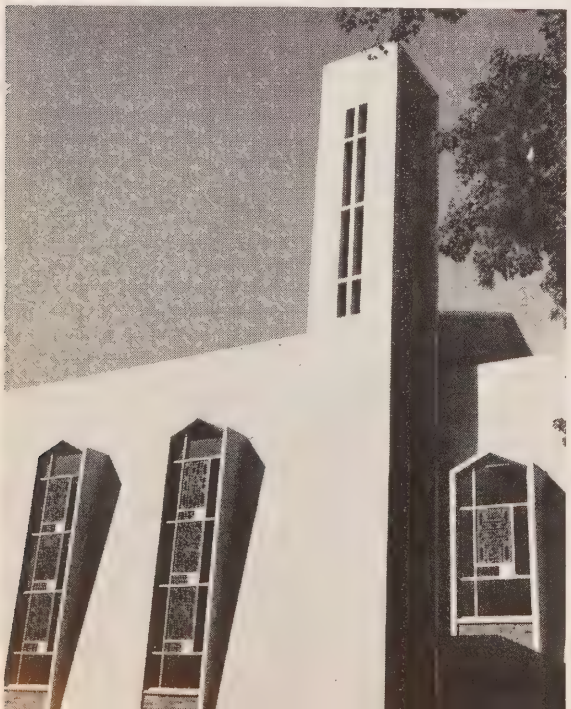
The modern plant was planned for electrical operation. Motors with a total capacity of 85-horsepower handle the air-conditioning system, giving a complete change of air throughout the building every three minutes. Electric motors operate the oil-fired furnaces for heating, while electric heaters also maintain a constant supply of hot water for several purposes. Even the loading-ramp outside the shipping room is electrically "de-iced" in the winter months. All in all, some 85 per cent of the plant's 200 motors are Hydro-operated.

Manufacture of pen points is an intricate operation, involving work on 14 kt. gold nibs to a tolerance of 6/1000 of an inch. Training an operator is an exacting task—a job that is more easily understood after watching the carborundum wheel (controlled by a one-hp. motor and making 14,000 r.p.m.) used in this job. The grinding operation is even more painstaking. After a small ball of iridium has been electrically-fused to the nib, the operator, with the aid of a 10-power glass, grinds the point to within 30/1000th of an inch to suit the various styles of handwriting. In the making of dies, tolerances of 1/10,000th of an inch are used.

Altogether, there are 70 to 75 separate "handlings" in manufacturing a pen point. In the production of the Sheaffer "snorkel" pen, there are some 350 operations.

Portions of the Sheaffer factory are literally paved with gold, but it's difficult to pick up nuggets. In the draw room, gold clipped from penpoints is reclaimed in large quantities. Electricity plays a part in this reclaiming. An electric machine washes cloths and clothing

MEMBERS of Knox Presbyterian Church adopted a modern design in rebuilding after their first edifice was destroyed.



ELECTRICITY at work. This abrasive cut-off machine in the large Dominion Road Machinery plant is operated by a 15-hp. motor.



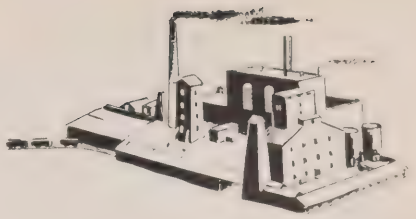
used by the employees, and the sludge drops into a tank. Once a year the gold that would otherwise be lost is taken from the bottom of the tank. Once a day, an electric vacuum cleaner goes over the floor, and this "mining" operation is quite profitable to the company. An electric blower also siphons dust from the buffing-machine.

Electric annealling ovens, electroplating, and an electric furnace that hardens steel at temperatures up to 1,825 degrees Fahrenheit are other ways in which electricity helps to produce a Sheaffer fountain pen. The firm is very proud of its machine used to manufacture the new cartridge-type refill for ball-point pens. This machine was invented by two employees, Eric Reaburn and Heinz Albrecht, the latter a new Canadian of Austrian origin. Operated by selenoid valves and using high-frequency induction heating, the machine can fill 1,500 cartridges an hour.

Such a multiplicity of minute processes, entailing skillful and careful manipulation, necessitated a high level of illumination in the Sheaffer building. This is provided by a fluorescent lighting system of 310 units equipped with a total of 930 tubes.

The town's largest industry in point of size is a landmark plainly visible to ships entering the Goderich harbor from Lake Huron. This is the elevator of the Goderich Elevator and Transit Company Limited, which, with 700 feet of frontage, is capable of storing 3,500,000 bushels of Canadian wheat. One of the largest elevators in Ontario, the massive structure is the third in the company's history. In 1898, a fire almost totally destroyed the harbor installations, including the wooden elevator. The second elevator was also destroyed by fire in 1905. The present structure has been made fire-resistant.

Approximately 30 large electric motors, ranging from 100 to 200 hp. (with one motor weighing five tons) and 35 smaller motors, with capacities between 25 hp. and 50 hp., keep ships, railroad cars and trucks busy loading grain destined for all points of the compass. The electric motors are completely dust proof, a



matter of necessity in an industry where dust can be a dangerous by-product.

Construction of a new, $1,000,000 elevator by the Upper Lakes and St. Lawrence Transportation Company in 1954 further consolidated the position of Goderich as an important grain port. This new installation has a storage capacity of almost 1¾ million bushels. Established in 1872, and now regarded as one of the oldest industries in Goderich, the Purity Flour Mills Ltd., plant is a dominant feature of Goderich harbor.

Until three years ago, the plant operated on power supplied jointly by Hydro and the firm's own thermal-electric plant. Today the firm's entire electrical needs are handled by the Goderich Public Utilities Commission.

Pioneer Municipality

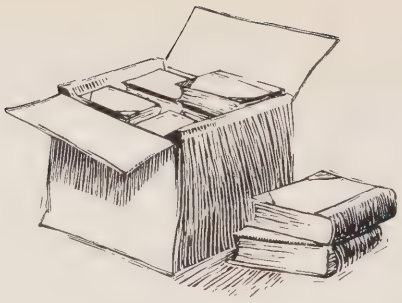
Goderich was one of the first municipalities in Ontario to use electricity to promote its development. The first electric committee was appointed by the town council in 1895. William Murney was Chairman, with J. W. Taylor and Mayor C. C. Lee as Commissioners. The present commission includes Chairman R. G. Johnston, with Thomas Taylor, George G. MacEwan, Mayor John H. Graham and William Mills as Commissioners. Goderich signed a contract with Ontario Hydro in 1913, being one of the initial communities in Ontario to use Niagara power. The original 30-year agreement with the Commission provided for a total

(Continued on page 21)

EXCELLENT harbor facilities have earned Goderich distinction as a major Lake Huron port-of-call for grain freighters, oil tankers, fishing vessels and pleasure craft of all types.



Morrisburg's Old Authors Farm moves to higher ground



LOCK, STOCK AND

By GARY SMITH

ONE day four years ago, a keen-eyed, balding man stood at the front gate of Old Authors Farm in Morrisburg as a truck rumbled by on its way to Cornwall.

Almost directly in front of him, the truck swerved to avoid a pothole, and a bundle tumbled from the back of the truck on to the road. As the driver pulled his vehicle to a halt the man strode forward and eyed the bundle eagerly. It was a package of old books, consigned, with others on the truck, to the paper mill.

Truck driver and observer debated briefly, and the driver finally reluctantly backed his load of waste paper into the driveway of Old Authors Farm. Here, while the truck operator waited impatiently, H. Borden Clarke cast his expert's eye over the cargo of "waste paper," and picked out a slim, paper-backed first edition of the poems of Robert Burns, printed in Kilmarnock in 1786, and worth, as a collector's item, approximately $18,000.

The find was undoubtedly rare, but only one of many old books, manuscripts and literary "objets d'art" turned up by the Master of Old Authors Farm during many years devoted to the preservation of man's literary heritage.

The incident also points up Mr. Clarke's pet beef. As he puts it: "We have been throwing books down the drain for 150 years because we forget to read a title page. Day in and day out, every day, countless numbers of rare volumes are sent to the paper mills as scrap, and each book carries with it something important from our past."

Today, after more than 25 years of handling rare old books, Borden Clarke is reorganizing his library in the Town of Morrisburg where he moved recently from his rural home, 3½ miles outside of town. The handsome old Flagg home, where he had lived with his books since 1942, must be removed as part of the rehabilitation program associated with the St. Lawrence Power Project, and last year Ontario Hydro rehabilitation experts began preparing for the unique job of moving some 100,000 books and their owner to a new home.

Apprehensive at first about the move, Mr. Clarke also realized the vital importance of the power project.

In Morrisburg, he purchased the attractive old Gibson home, built by United Empire Loyalist hands, from Hon. George H. Challies, Chairman of the Ontario-St. Lawrence Development Commission and a former Vice-Chairman of Ontario Hydro.

100,000 Volumes

The task of moving Mr. Clarke's stock-in-trade subsequently began, and the first problem to assert itself was that of finding room for the 100,000-volume library. To date about 30,000 books, or approximately one-third of the Old Authors Farm library, have been moved. One warehouse has been erected behind his new home, and with the construction of a second building this year the remainder of the books will be brought in.

Already, however, Mr. Clarke is back at work, and since moving from the country has published and mailed his Old Authors Farm Book List No. 166. This publication, compiled and issued quarterly, has a circulation of some 10,000, includ-

(Continued on page 14)

H. BORDEN CLARKE, proprietor of Old Authc Farm, prizes a historic portfolio, which he discover at Bangor, Maine, while appraising books in t library of Hannibal Hamlin, Vice-President of Unit States during the 1861-1865 Lincoln administratio

THIS handsome Morrisburg residence of United Empire Loyalist vintage is now the headquarters of Old Authors Farm.



LETTERS





◁ SITUATED behind Mr. Clarke's Morrisburg home, this sturdy brick structure, built by Ontario Hydro, accommodates some 30,000 books. The remainder of the 100,000-volume Old Authors library will be moved into another building.



ing 4,000 institutions and 5,000 private collectors who, from time to time, do business with Old Authors Farm.

Mr. Clarke numbers among his customers such private collectors as Dwight D. Eisenhower, Sir Winston Churchill, J. P. Marquand and Viscount Bernard Montgomery. Stephen Leacock, Franklin Delano Roosevelt, William Lyon Mackenzie King and H. L. Mencken all were regular customers for several years before their deaths. State archives and universities around the world are on Mr. Clarke's mailing list.

Old Authors Farm also was recently appointed North American agent for the sale of a rare collection of duplicates from the Vatican libraries. Many of these books date from the 15th and 16th centuries, and most of them are in Latin, printed on hand-made vellum, and bear tooled-leather bindings.

Besides his books, Mr. Clarke has acquired several rare early household artifacts, which he keeps for his own appreciation. Among them is a grandfather clock, believed to be the first ever made in Canada, and a mounted mirror from the home of Peter Stuyvesant, a New York Dutch pioneer, who had the piece built for his home sometime between 1680 and 1720.

The Master of Old Authors Farm, a wiry, vigorous man of 55, started operations in Ottawa in 1931 when he opened a small book shop on Sussex Street with some 500 volumes. Business grew steadily until, during the war years, he tired of city life, and sought refuge in the country.

Business by Mail

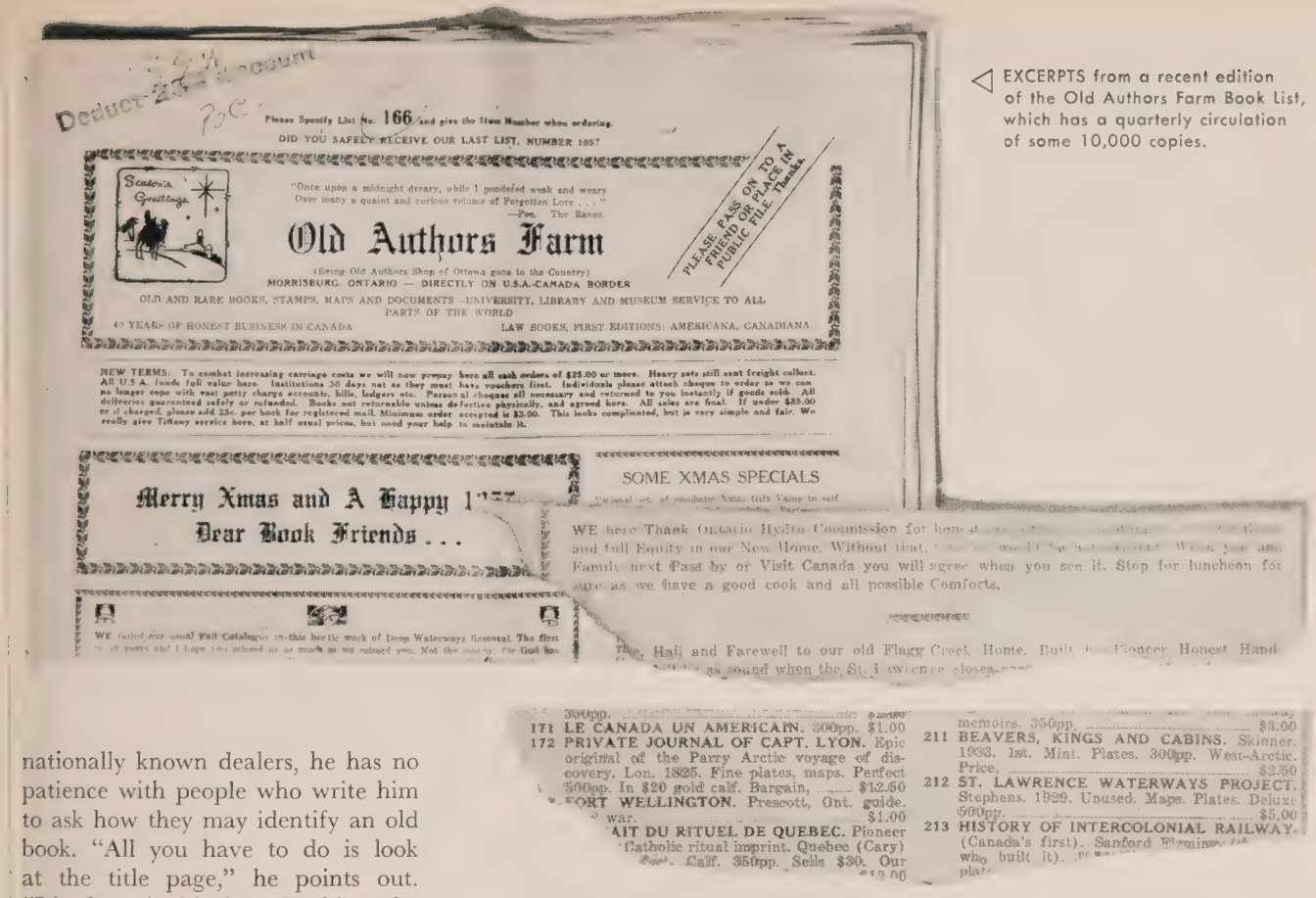
In 1942 he purchased the U.E.L. John Flagg home outside Morrisburg, and there settled down with his books. Since that time, most of his business has been carried on by mail, and he and his wife, Dorothy, whom he met and married in Ottawa, shoulder the job of filling as many as 50 orders a day. Their daughter, Harriet, now two years old, hasn't been allowed to help out since the day she tore up a rare copy of one of the world's first dictionaries, "proving" smiles Mr. Clarke, "that at least she has taste."

Born in Nova Scotia, the son of a railway station operator, Borden Clarke spent two years in Chicago studying medicine before deciding the medical profession wasn't for him. He returned to Halifax, and in the early 1920's, at the age of 23, opened Radio Station CHAC, the first public radio station in the Maritimes and the second in all of Canada.

"That was in the days before commercial radio," recalls Mr. Clarke. "The only people operating stations then were the big manufacturers, who made up the cost of operation by selling radio sets and parts. I had obtained the franchise in Canada for several large radio manufacturers, but the money I made didn't offset the cost of keeping CHAC on the air."

Young Mr. Clarke, unaware that commercial radio was just around the corner, dropped his radio franchise, and, in 1924, went off to Boston. Here his interest in books began to develop, and he got a job with a Boston book dealer, first as a book scout—which meant spending his time on the road looking for old books—and later as an appraiser. During the next seven years he learned the second-hand book business from the bottom up.

Today one of Canada's most inter-



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DID YOU SAFELY RECEIVE OUR LAST LIST, NUMBER 165?

Season's Greetings

"Once upon a midnight dreary, while I pondered weak and weary
Over many a quaint and curious volume of Forgotten Lore . . ."
—Poe. The Raven.

Old Authors Farm

(Being Old Authors Shop of Ottawa gone to the Country)
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NEW TERMS: To combat increasing carriage costs we will now prepay here all cash orders of $25.00 or more. Heavy sets still sent freight collect. All U.S.A. funds full value here. Institutions 30 days net as they must have vouchers first. Individuals please attach cheque to order as we can no longer cope with vast petty charge accounts, bills, ledgers etc. Personal cheques all necessary and returned to you instantly if goods sold. All deliveries guaranteed safely or refunded. Books not returnable unless defective physically, and agreed here. All sales are final. If under $25.00 or if charged, please add 25c. per book for registered mail. Minimum order accepted is $3.00. This looks complicated, but is very simple and fair. We really give Tiffany service here, at half usual prices, but need your help to maintain it.

Merry Xmas and A Happy 1[illegible]
Dear Book Friends . . .

SOME XMAS SPECIALS

WE here Thank Ontario Hydro Commission for hand[illegible] and full Equity in our New Home. Without that, [illegible] Family next Pass by or Visit Canada you will agree when you see it. Stop for luncheon for sure as we have a good cook and all possible Comforts.

WE failed our usual Fall Catalogue in this hectic work of Deep Waterways Revival. The first [illegible] years and I hope you missed us as much as we missed you. Not the only [illegible] God has

The Hail and Farewell to our old Flagg Creek Home. Built by Pioneer Honest Hand [illegible] as sound when the St. Lawrence closes.

300pp.
171 LE CANADA UN AMERICAIN. 300pp. $1.00
172 PRIVATE JOURNAL OF CAPT. LYON. Epic original of the Parry Arctic voyage of discovery. Lon. 1825. Fine plates, maps. Perfect 500pp. In $20 gold calf. Bargain, ... $12.50
FORT WELLINGTON. Prescott, Ont. guide. war. $1.00
AIT DU RITUEL DE QUEBEC. Pioneer Catholic ritual imprint. Quebec (Cary) Calf. 350pp. Sells $30. Our [illegible]

memoirs. 350pp. $3.00
211 BEAVERS, KINGS AND CABINS. Skinner. 1933. 1st. Mint. Plates. 300pp. West-Arctic. Price, ... $2.50
212 ST. LAWRENCE WATERWAYS PROJECT. Stephens. 1929. Unused. Maps. Plates. Deluxe 500pp. $5.00
213 HISTORY OF INTERCOLONIAL RAILWAY. (Canada's first). Sanford Fleming [illegible] who built it). [illegible] plates.

EXCERPTS from a recent edition of the Old Authors Farm Book List, which has a quarterly circulation of some 10,000 copies.

nationally known dealers, he has no patience with people who write him to ask how they may identify an old book. "All you have to do is look at the title page," he points out. "It's there in black and white; the title, author, publisher, and where and when the book was printed."

He is quick to add, however, that the age of a book or manuscript is not always the factor that leads to its becoming a rarity. "The circumstances under which it was written and published are extremely important," Mr. Clarke says.

To support this he has in his possession a highly-prized find which came to his attention during a recent trip to Bangor, Maine. The Old Authors Farm dealer was the third book expert called in when the former home of Hannibal Hamlin, Vice-President of the United States during the 1861-1865 Abraham Lincoln administration, was placed on sale.

"Many valuable manuscripts and volumes had already been found and removed when I arrived," Mr. Clarke remembers, "but on the top shelf of a dusty bookcase, I discovered one of Vice-President Hamlin's personal portfolios—the one he used while in the Lincoln cabinet."

Emancipation Blotter

Inside, along with other historically valuable documents, was the original blotter used to dry the United States' Proclamation of Emancipation, which, during Lincoln's administration, freed the slaves.

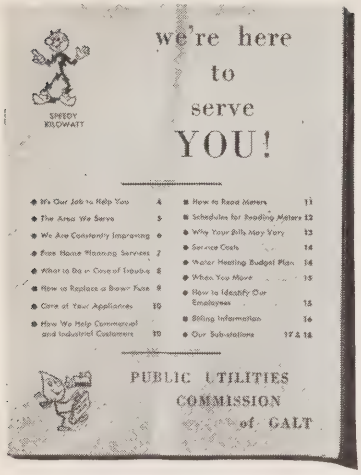
The Hamlin portfolio is a valuable find because its contents reflect the circumstances which led to the signing of the Proclamation of Emancipation. Mr. Clarke feels, however, that the most fertile field remaining to dealers and collectors is the American and Canadian west —"civilization's last great frontier."

Visitors, among them names widely known in the fields of politics, literature and science, frequently drop in on Old Authors Farm to chat with Mr. Clarke, and look over his stock. The quarterly book list always extends a current invitation to his customers to "stop for luncheon for sure, as we have a good cook and all possible comforts."

And visitors who stop, whether famous names in their fields or just "kindly book folk," are welcomed royally at Old Authors Farm. It is probable that the coffee brewed by Mrs. Clarke ranks with the most renowned in the world.

Of the recent move from his "Old Flagg home," Mr. Clarke speaks well. "The Prof." as Mrs. Clarke calls her husband, feels he was treated fairly and that the moving job was handled "efficiently and honestly."

Now, in its new quarters, Old Authors Farm continues its fascinating task of rescuing and preserving the rare, the ancient and the beautiful in the written and printed word. ■



GALT SETS AN EXAMPLE

"We're here to serve you!"

THAT'S the proud title of an interesting, 19-page booklet recently published by the Galt Public Utilities Commission. Designed to increase public knowledge of Galt's electrical and water systems, the booklet will be distributed on a free basis to new customers when they apply for service.

From cover to cover the blue-and-white brochure is packed with information relating to the operations and services of the enterprising utility. An index on the cover, including such headings as: Free home planning services; what to do in case of trouble; how to replace blown fuses, etc., facilitates reference for new customers, and provides an illustration of the wide variety of topics discussed in the succeeding pages.

Leading off with a map of the city, which pinpoints the location of the utility headquarters (officially opened by Ontario Hydro's first Chairman, Sir Adam Beck, in 1922) and Galt's postal building, the booklet notes the fact that the commission has been serving the community for almost 50 years. Today Galt P.U.C., with a staff of about 54, supplies more than 7,800 customers over some 70 miles of distribution lines and approximately 63 miles of watermains.

Extending an invitation to customers to avail themselves of the free home planning services provided by Galt P.U.C., the booklet lists these services under the following headings: Construction and kitchen planning, kitchen ventilation, adequate home wiring, home lighting and water heating.



Useful Advice

An important section of the booklet deals with "what to do in case of trouble," offering this useful advice:

"If your lights should go out, check first to see if neighborhood lights are also out. If so, there is probably trouble on our (Galt P.U.C.) lines, and we would appreciate a call if the lights do not come back within a few minutes. If your neighbor's lights are burning, the trouble is probably in your own wiring system. Check for a blown fuse. It is possible that a defective appliance or attachment cord has blown a fuse in your distribution panel box. The replacement of these fuses is your responsibility. If you are still unable to find the cause of the trouble, call our Service Department. Your assistance in maintaining street lighting throughout the city is requested. Please notify our office, when lights are out or have been broken."

Another page provides information on the replacement of blown fuses, and offers reasons why fuses





blow: defective appliances, overloaded motors, faulty lamp sockets, defective extension cords, too many appliances on one outlet; broken or defective appliance connector plugs.



When a blown fuse has been located, the Galt P.U.C. booklet suggests: "Touching only the damaged fuse, remove the blown fuse, and replace it with a new fuse of the proper ampere capacity, normally 15 amperes for branch circuits. Be sure your hands are dry and you are standing on a dry floor. If the floor is damp or made of concrete, use a dry board to stand on."

Other topics include the care of electrical appliances, reading water and electric meters, schedules for reading meters, service costs and their reasons, flat-rate automatic water heating plan, customer procedure when moving, identification of utility employees, discounts, hours of payment, receipts and non-payment of accounts.

Customer Bills

A page is devoted to an interesting appraisal of customer bills. This section emphasizes that "many conditions cause changes in water and electric bills from month to month. The fall and winter seasons, with their longer nights and lower temperatures, are the usual times of greatest use of electricity. . ." Customers are also advised that more artificial light is needed in the winter than in the summer; that illness in the home requires the use of heating pads, heat lamps, etc., while more electricity is required in the winter to heat the colder water; electrical bills, too, are influenced by the use of automatic heating equipment with electric motors. Holiday festivities, such as Christmas and New Year's are usually accompanied by the increased use of electricity. An increase in the size of the family, or the addition of new electrical appliances such as a freezer, clothes dryer, air conditioner, etc., will mean greater comfort and convenience, but also higher bills. A variation in meter reading dates or the estimating of bills will cause fluctuations in electrical accounts.

Utility premises, such as substations, water pumping station and the utility headquarters are identified for the new customer by the publication of photographs of each building.

Judging by local comment since the booklet was issued, Galt commissioners and staff feel justifiably proud of this public relations project. ■





PUBLIC RELATIONS — AT THE UNDERGROUND LEVEL!

Toronto Hydro's Engineering Department believes in good public relations at the grass roots level—in fact at the underground level! In recent months these signs have made their appearance on Toronto streets where new underground duct installations or maintenance projects are underway. Two Toronto citizens stop to scrutinize one of the new signs temporarily erected while crews were installing new facilities on Church Street in the Queen City.

LIVELY DEBATE

EMPLOYEE relations provided the basis for a lively debate at the recent annual meeting of O.M.E.A. District 5.

Held at the Garden Centre Hotel near Vineland, this year's gathering was one of the largest District 5 meetings on record with approximately 130 delegates in attendance.

With W. B. Elliott, St. Catharines, presiding, delegates entered wholeheartedly into the discussion of a proposed employee relations program submitted by the district executive.

In presenting details of the project, S. K. Learie, Manager, Niagara Industrial Relations Institute, said that "efficient operation of any organization depends, more than ever before, on a sound employee relations program."

Fair, Stable Relations

The purpose of the District 5 program, he continued, was "to assist members to establish and maintain fair and stable employee relations." In this way, commissions would avoid "out-of-line" conditions, which cause difficulty, and patterns of uniformity would be established.

In its initial stages, the program would entail a survey that would cover up-to-date information on the main monetary conditions of work, such as wage rates for various job classifications, hours of work, overtime, paid holidays, vacations, off-shift premiums, sick leave, insurance, hospital and medical schemes and pensions. The results of the survey would be published in loose-leaf form, with a sheet for every commission. A new sheet would be issued when a utility changed any of the items covered.

Main Conditions

Thus, "the owner of this survey



△

DURING a recess, these delegates: left to right — Dan Leo, Merritton, F. R. Cavers, St. Catharines, and Norman Boyd, Brantford, discuss utility problems.



△

MEMBERS of the new executive: seated left to right — F. R. Kaupp, Merritton; President W. B. Elliott, St. Catharines; Thomas Barnes, Niagara Falls; Ray Pfaff, St. Catharines; standing left to right — Cecil Swayze, Welland; C. R. Buss, Thorold, and Roy Pierson, Brantford Township, plan the 1957 program.

Delegates endorse employee relations program for O.M.E.A. District 5 members



Elliott (right) presents a roll bag to Hearn, former Ontario Hydro Chairman.



rd Rolls, Niagara Falls, proves himself ons speaker judging by the expressions hei table companions: left to right — C. R. Hearn and Hydro Chairman J. S. Duncan.

would have a record at all times of the main conditions of work of all commissions. With the new sheets, he would get notice of changes as they are made," Mr. Learie pointed out.

The program also made provision for a quarterly labor report, including a summary of government statistics, union proposals and bargaining progress. With this report, utilities would be informed of the general labor situation in the municipal electrical utility field, pertaining especially to collective bargaining.

Special labor reports and surveys would be other features of the program. Extra services, such as special surveys, advice on employee relations problems, representation before the Labor Relations Board, also on or before conciliation and arbitration groups, while meetings or discussion forums would be available to all utilities at their individual request and individual expense, Mr. Learie told delegates.

The effectiveness of the program, which would have a minimum cost of $3,000 a year, "would depend, in part, on the individual utility making available, promptly and accurately, information regarding its employee relations program."

Discussion Period

Mr. Learie's presentation was followed by a lengthy discussion period, during which several delegates warmly commended the executive officers for their initiative in gathering preliminary data for such a program.

While dissent was voiced in some quarters, particularly on the grounds that such a program represented "an invasion of local autonomy" in respect to wages and general working conditions, delegates endorsed the proposal.

Answering objections to the plan, President Elliott assured delegates that "there is no thought of establishing a uniform wage rate or imposing a master contract on the member utilities."

"Our idea is to provide information that will assist commissions to bargain intelligently having in mind local conditions. We feel confident that such a program will be of benefit to utility employees and management alike," he said.

Replying to a suggestion that the program should include information pertaining to other utility departments, such as water, gas, transportation, etc., Mr. Elliott expressed the view that this would not be feasible.

"This program is being inaugurated by a municipal electrical association, and should, we feel, deal only with matters relating to electrical employees and departments," he said.

In moving adoption of the proposal, F. R. Cavers, St. Catharines, stipulated that delegates approve the program in principle, contingent upon procurement of figures relating to the allocation of costs involved. When these figures were available, the executive would be free to present the program to District 5 member commissions for individual approval.

While no motions were presented by the Resolutions Committee, President Elliott threw the meeting open for discussion from the floor. Acting on Mr. Elliott's invitation, Harold Walker, Welland, presented a motion advocating that utilities rebate charges made for street lighting in

(Continued on page 28)

17,000 YEARS' SERVICE



△

MISS M. Eugenie Ingleton, the second lady employee of the Toronto Hydro-Electric System to complete 40 years' service, receives her pin and hearty congratulations from John McMechan, Vice-Chairman, Toronto Hydro.



△

THESE Toronto Hydro employees, left to right — William McMurray, John Mathieson, John G. Matheson and Ernest Fry officially joined the Quarter Century Club ranks this year. Two other "eligibles," Lloyd L. Lee and Edmund E. Fairchild were unable to attend the annual dinner.

More than 17,000 years' combined service with the world's largest municipally-owned electrical utility is represented by 513 active members of the Toronto Hydro Quarter Century Club.

Welcoming the 435 long-service and retired employees attending the 29th annual banquet this year, President Sidney G. Clent brought this interesting fact to light as he congratulated six new club members, each of whom had completed 25 years' service with the Toronto Hydro-Electric System in the past year. In lauding the dinner as an institution that provided an opportunity for active and retired staff members to renew associations formed during their years of public service, Mr. Clent also extended a special greeting to 11 employees, who had joined the 40-year ranks.

Bert Merson, Chairman, Toronto Electric Commissioners, also voiced congratulations to the new club members, and directed attention to the fact that only six new members had joined the club. During the coming year there would be no new employees eligible for membership, due to the fact that few employees had joined the staff during the war years and the depression period of the 1930's. This had left a gap that must be filled by the experience of club members, Mr. Merson stated. John McMechan, Vice-Chairman, and H. J. MacTavish, General Manager, also made short addresses.

The presentation of long-service pins, always a highlight of the annual banquet, had an added significance this year when Miss M. Eugenie Ingleton became the second lady in the history of Toronto Hydro to receive a 40-year award. A group of 10 male staff members also received 40-year presentations: Frederick J. Bennett, Louis P. Forbare, George C. Heathcote, R. John Johnson, George W. Lewis-Watts, Nelson Martin, Stephen L. Peer, Charles E. Richmond, James Waters and George A. Watt. It was noted that there were now 41 members in the 40-year category still on the active staff of Toronto Hydro.

Pins signifying 25 years' service were presented to Ernest E. Fry, William McMurray, John G. Matheson and John Mathieson. Lloyd H. Lee and Edmund E. Fairchild were unable to attend, and will receive the 25-year presentations at a later date. Mr. Merson and Mr. McMechan made the presentations.

In keeping with the spirit of the occasion, the evening was pleasantly rounded off with a well-chosen program of entertainment under the direction of Sidney Prior. Music was provided by accordionist Nancy McCaig and the East York "Barbershoppers."

A single note of solemnity was introduced when the gathering rose to pay silent tribute to the members and retired personnel, who had died during the year. Secretary A. A. (Bert) Gibbs read the list of deceased which included: (members) Frederick Arnott, Arthur Burke,

(Continued on page 27)

LAKE HURON'S GOLDEN GATE

(Continued from page 11)

load of 700 horsepower. Municipal expansion since that time is indicated by the fact that the present-day load is approximately 3,400 kilowatts. The local utility supplies power to 1,800 domestic customers, 300 commercial, and 55 industrial customers through facilities, which include some 33 miles of distribution line, as well as two municipally-owned and two privately-owned substations. A staff of 18, under Manager E. D. Weaver, includes a line crew of four. Four utility trucks are in constant service.

Goderich citizens look forward to the weekly issue of the *Signal-Star,* one of the 11 oldest weekly newspapers in Canada, and one of the first 12 daily and weekly newspapers established in Ontario. George Ellis, the present editor, has a newsman's quiet pride in the fact that the *Signal-Star* has not missed an issue in all its 108-year history.

This unique record is matched by the novel design of the town, which is noted for its spacious streets and the architecture of many of its private and public buildings. Ultra-modern homes stand side-by-side with stately, well-kept mansions of another era, and, rather than being incongruous, the overall effect is pleasing and symmetrical.

New Courthouse

While the main square was torn up for several months of 1955, the citizens did not mind, for an entirely new roadbed was laid, and a fine new, $700,000 county courthouse was completed in July last year. A county seat since 1827—once for both Huron and Bruce Counties—Goderich is still the administrative and judicial centre of Huron County.

There is an active industrial commission, ably represented by youthful and energetic Peter MacEwan, as well as a Junior Chamber of Commerce. Service and fraternal organizations include a Kinsmen Club, Lions Club, Canadian Legion Branch 109, Independent Order of Oddfellows, Masonic Order, Orange Lodge, two chapters of the I.O.D.E., Rebekah Lodge, Kinette Club, a chapter of Beta Sigma Phi and the Goderich Women's Institute, one of the oldest branches in Ontario.

The 18-classroom Goderich Collegiate Institute, with facilities for teaching both matriculation and commercial courses, provides secondary education for approximately 425 urban and district students. Primary education is furnished by two public schools and a separate school.

The junior citizens are, in fact, a favored group in this municipality, which places strong emphasis on recreation. Two playground areas—one playground featuring a swimming pool—and the Memorial Arena, offer plenty of outlets for youthful energy.

With its progressive outlook, and the opportunities it presents to its younger generation, Goderich is already looking forward to the completion of the St. Lawrence Seaway as another milestone in its steady development.

"We are the gateway to the Canadian West," one ardent booster pointed out, "and the only deep-water harbor on the east side of Lake Huron."

It is easy to see why Goderich is looking forward confidently to another era when the lights of its harbor will beckon to transatlantic freighters.

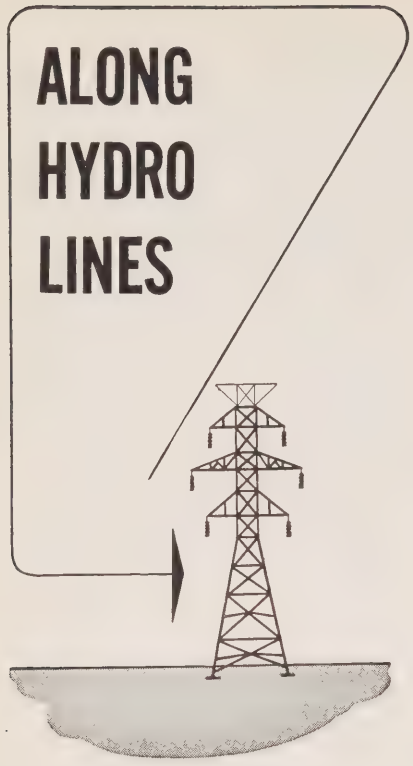
Thus, imbued as it is with the spirit of its first citizen, "Tiger" Dunlop, Goderich faces the future with fresh confidence. ■



△

SEAT of Huron County since 1827, Goderich is proud of the recently-completed $700,000 courthouse building. The handsome new structure is situated in the centre of the main square.

ALONG HYDRO LINES



Carleton Place Honors Commissioners

Carleton Place Public Utilities Commission recently honored its retiring Chairman, H. E. Sinclair, and Vice-Chairman, George E. Findlay, for their long and devoted service to the commission. On behalf of the commission, Mayor Wm. W. Pollock, Q.C., presented both men with suitably-engraved desk pens.

Both Mr. Sinclair and Mr. Findlay became commissioners in 1930. Mr. Findlay has served continuously since, being Chairman from 1935 to 1944 inclusively and Vice-Chairman for 16 years. For two years he was President of the Eastern Ontario Municipal Electric Association and a director for many years.

Mr. Sinclair served on the commission as Mayor from 1930 to 1933. In 1940, he was appointed to fill an unexpired term, served as Vice-Chairman in 1943-1944, and became Chairman in 1945, a post he filled until his retirement.

P.U.C. Superintendent Dies at Wheel of Car

Suffering a heart attack while driving his car recently, W. Herbert (Herb) Aitken, Hydro Superintendent of St. Thomas Public Utilities Commission, died before he could reach the hospital. Mr. Aitken, who had been an employee of the commission for 43 years, was to have retired at the end of this year.

The deceased began work as a lineman in the electrical department of the Light, Heat and Power Company, forerunner of the St. Thomas P.U.C., on October 15, 1913. In the interim, he has helped to build the city's electrical system, which is now approximately ten times its original size. Last year he was given the honor of throwing the switch, which cut off the last 25-cycle power supplied to St. Thomas when the 60-cycle changeover program in that city was completed.

Born near Oil Springs, Lambton County, he came to St. Thomas at the age of nine. He is survived by his wife, two daughters and three grandchildren.

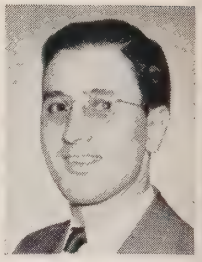
Complete Changeover At Hamilton

A milestone in the history of Ontario Hydro's frequency standardization program was reached on February 12 with the last "cutover" to 60 cycles at Hamilton.

Operations in the province's second largest city involved changing the power supply to approximately 65,000 homes, stores, commercial premises and industrial plants, and altering some 435,000 electrical items excluding clock and fan exchanges.

A unique situation existed in Hamilton in that two frequencies were in use — 66-⅔ cycles and 25 cycles. Approximately 900 domestic, commercial and industrial customers using 66-⅔ cycles had their equipment converted under a special program, which was carried out in 1951.

London P.U.C. Names Assistant General Manager



A. L. FURANNA

Anthony L. (Tony) Furanna has been appointed Assistant General Manager of London Public Utilities Commission. The appointment of Mr. Furanna, who will retain the position of Chief Engineer, fills a vacancy created by the death of Basil W. Grover in November last year. Keith Leeson has been appointed Assistant Engineer.

Born in London, Mr. Furanna attended the University of Western Ontario and graduated from Queen's University, Kingston, in electrical engineering in 1939. After a year on the university teaching staff he joined the London P.U.C. engineering department and was appointed Chief Engineer in 1952. During World War II he was commissioned as a Lieutenant in the R.C.E.M.E., but was recalled to civilian life in 1943 to serve as instrument division engineer with a large firm manufacturing electrical instruments for the armed forces.

A member of both the Association of Professional Engineers of Ontario and the Engineering Institute of Canada, Mr. Furanna is also prominently identified with A.M.E.U. activities.

Tillsonburg Names New Foreman

Jack Stephenson, foreman of the Hydro division of Tillsonburg Public Utilities Commission for the past 11 years, resigned recently to take a position with A. B. Chance Company of Canada Limited. Robert G. Hart, assistant foreman for the past four years, has been named to fill the vacancy.

Veteran Commissioner Named Chairman

A member of the Fort William Hydro-Electric Commission since 1937, C. H. Moors, veteran Hydro Commissioner, was honored by his colleagues at the 1957 inaugural meeting by re-election as Chairman. Mr. Moors has served his community in public life continuously for 31 years. Before joining the commission he served as an alderman and a public school trustee.

Manager A. W. H. Taber reported increased revenue and use of power. He said that the receipts for December, 1956, were $7,000 more than in the same period in 1955. At the same time, the peak load had increased from 29,509 kilowatts in December, 1955 to 32,319 kilowatts for the same month last year.

Galt Industries Raise Power Demands

Hydro customers at Galt used 82,000,000 kilowatthours in 1956, a considerable increase over the previous year. At a recent meeting of Galt Public Utilities Commission, it was reported that industrial expansion in Galt had increased power demands. Since 1952, industrial requirements have increased by nearly 60 per cent. Over the past several years, there has been a 50 per cent increase in domestic energy consumption.

Lakehead Cities Honor Retiring Commissioner

Commissioners and other representatives of both the Port Arthur Public Utilities Commission and the Fort William Hydro Commission recently honored Dr. M. P. Benger on the eve of his retirement after 17 years' service as a Port Arthur utility commissioner. Dr. Benger had been chairman of the commission on several occasions. He was presented with a silver platter by Port Arthur Commissioner Sam Ashton.

ERECTING NEW REGIONAL BUILDING

ONTARIO Hydro is undertaking construction of a new headquarters building for its East Central Region. Located near the easterly limits of Belleville, in Thurlow Township, the building will provide an area of some 40,000 square feet, and is planned so as to centralize the regional staff in a single headquarters. It follows the general pattern of other Hydro Regional Offices at North Bay, Hamilton and Ottawa.

The two-storey building will be L-shaped, and will have a full basement. The front will be 147 feet long, with a depth of 55 feet, while the rear wing will be 109 feet long, and 48 feet in width. The structure will have a reinforced concrete foundation, and a structural steel frame.

The new building will assist materially in meeting the growing needs of customers in the progressive East Central Region, of which E. G. Gurnett is Manager. Covering an area of more than 10,300 square miles, it includes 36 municipalities and 15 rural operating areas. In 1948, which marked the first full year of operation of Ontario Hydro's nine regional offices located in various parts of the province, the East Central Region was serving a total of 87,859 customers; in 1956, that figure had risen to an estimated 145,400 customers, or an increase of 65 per cent. The actual December peak kilowatt load of the region has increased by 149 per cent in the same period, from 131,014 kilowatts in 1948 to 327,069 kilowatts in 1956.

In the 15 rural operating areas under the supervision of this region, there are now 6,878 miles of rural line and 61,078 rural customers, representing increases of more than 77 per cent and 107 per cent respectively since 1948. The sum of the peak loads of the region's 26 direct industrial customers in December, 1956, totalled 69,000 kilowatts, as compared with 27,751 kilowatts in 1948 — an increase of 149 per cent. The overall consumption of electricity in the East Central Region in 1956 approximated one-and-one-half billion kilowatthours.

24-Year Sudbury Commissioner Retires



J. D. McINNES

With 24 years of untiring effort for the community as a Hydro commissioner behind him, J. D. McInnes, has retired from the Sudbury Hydro-Electric Commission, satisfied that "now we have a system in Sudbury that will not take second place to anything in Ontario." Born 67 years ago in Winnipeg, Mr. McInnes moved to the Nickel City when he was 17 years of age. He served three years as a city alderman from 1931-1933. In 1935, when the Sudbury Hydro-Electric Commission was formed, he was elected to his first two-year term as a commissioner, and has been re-elected every term until this year when he retired.

Mr. McInnes is proud of the fact that the utility has grown in his time from an organization worth a half-million dollars to one with assets nine times that amount, and that the new Sudbury Hydro building, which will be named in his honor, is free of debt. A noted fisherman, he has made conservation one of his main interests, and is a life member of the Sudbury Fish and Game Protective Association. Married to the former Margaret Horne, he has two sons, Dr. Jack McInnes and Bob McInnes, both of Sudbury.

Former Chairman To Receive Kennedy Medal

V. A. McKillop, President of the Engineering Institute of Canada, recently announced that the Sir John Kennedy Medal for outstanding engineering achievement will be presented to two distinguished Canadian engineers. Dr. Richard L. Hearn, former Ontario Hydro Chairman and now a consulting engineer with the Commission, and Dr. I. R. Tait, retired chief engineer of Canadian Industries Limited, have been chosen to receive the medal next June at the Institute's general meeting in Banff.



DR. R. L. HEARN

In making the announcement, Mr. McKillop, who is General Manager of London P.U.C., stated that this was the first time in the medal's 50-year history that two men would receive awards. The Sir John Kennedy Medal is awarded at intervals of not less than two years in recognition of great service rendered to the development of Canada, to engineering science and to the profession.

Dr. Hearn, who is a Director of Atomic Energy of Canada Limited, has been honored with two other medals in recent years. In January, 1956, he received the highest honor accorded an engineer by the Association of Professional Engineers of Ontario, when he was presented with the Professional Engineer's Medal. The accompanying citation said that the award was made to Dr. Hearn for his "outstanding achievement and distinguished accomplishments in hydro-electric engineering and for his contribution to the welfare of mankind in furthering the application of nuclear fission in peacetime uses." Dr. Hearn's engineering accomplishments were also honored in 1954, when he was chosen to receive the Julian C. Smith Medal, presented annually by the Engineering Institute.

Fort William Plans New Service Building

C. H. Moors, Chairman of the Fort William Hydro-Electric Commission, has announced the construction of a stores and service building, beginning early this spring. Commenting on the work to be undertaken, Mr. Moors said the $250,000 building was designed to meet growing utility requirements and would assist the staff in rendering improved service to the public. When the new centre is in use, present office facilities will be enlarged, thus providing more adequate accommodation for all departments. Construction will be handled by a local contracting firm.

Dunnville P.U.C. Receives Plaudits

The Canadian Electrical Association publication recently pointed out that Dunnville is one of 12 places in Canada carrying out an extensive program of underground cable installations. The article maintained that Dunnville, in point of population, leads all Canada in this respect.

The Dunnville Public Utilities Commission, Manager John Dawson and his men were also congratulated by a monthly leaflet issued by the American Water Association, as the first utility in Canada to use liquid alum in water treatment. Since Dunnville took the lead in October last year, other Canadian communities have adopted the practice.

James Norman Stanley

Superintendent of construction during the building of Ontario Hydro's Nipigon and DeCew Falls power developments, James Norman Stanley, of Toronto, died recently. A graduate of Queen's University as both Master of Arts and Bachelor of Science, Mr. Stanley was, for a time, divisional engineer with the Shawinigan Water and Power Company before joining the Commission.



NEW TREND IN COMMUNICATIONS

V. A. McKILLOP, General Manager of London P.U.C., as President of the Engineering Institute of Canada, recently figured in a history-making communications event at Montreal. In the accompanying photograph, Mr. McKillop is addressing engineers who were meeting simultaneously in Montreal, New York and London, England. Mr. McKillop's address was delivered during the first three-way conference to be held via the new transatlantic cable in which members of the Engineering Institute of Canada, the American Institute of Electrical Engineers and the British Institution of Electrical Engineers participated. Pictured above, left to right, are Douglas Bowie, President of the Canadian Overseas Telecommunication Corporation; Thomas W. Eadie, President of the Bell Telephone Company of Canada; R. G. Griffith, Chief Engineer of the C.O.T.C., and Mr. McKillop.

Stratford Commission Lets Garage Contract

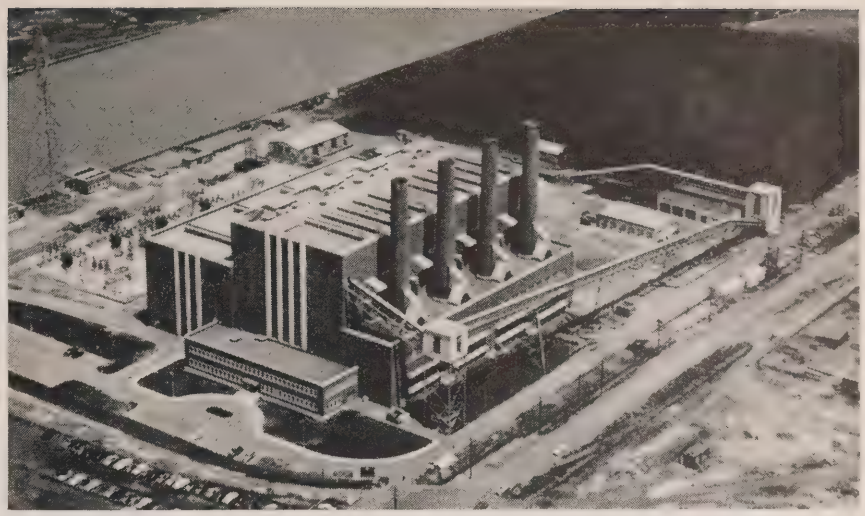
Stratford P.U.C. has awarded a contract for the construction of a new garage and utility building to the John Gaffney Construction Company, Stratford, at a contract price of $132,134. The building will be erected on the site of a former gas plant once operated by the local commission, and it will form part of a utility expansion program, which will eventually include a new office building. The contractor, one of six firms submitting bids on the building, has been authorized to undertake work immediately.

York Hydro System Announces Rate Cuts

Reductions in customer bills ranging from five to 20 per cent were announced recently by Deputy Reeve William Graham, Chairman of the Township of York Hydro System. The new rates, conforming to the new municipal rate structures, will mean an overall decrease in revenue based on 1955 load and kilowatt-hour figures—of 14.5 per cent. Mr. Graham estimated that the total savings to township customers in 1957 would be about $450,000.

Galt Pushes Safe Wiring

Galt Public Utilities Commission is taking steps to improve wiring, and to restrict the fire hazards that accompany poor circuits. At a recent commission meeting it was decided to call a conference between commission members and representatives of the local fire department and local electricians to find a solution to the problems arising from blown fuses in residential sealed main fuse boxes. General Manager D. N. Durward pointed out that local fire departments, under the Ontario Fire Marshal's Act, have the authority to enforce safe wiring in residential and other premises by ordering re-inspection of any home.



RICHARD L. HEARN GENERATING STATION, TORONTO

HYDRO TO INSTALL EIGHTH UNIT

Further extension of the Richard L. Hearn Generating Station on Toronto's waterfront has been announced by the Commission. The capacity of Canada's largest thermal-electric plant will be increased by the installation of a fourth 200,000-kilowatt unit, raising its total ultimate installed capacity to 1,200,000 kilowatts.

Four 100,000-kilowatt units have been installed at this station. In addition, three 200,000-kilowatt units are scheduled for service in 1958, 1959 and 1960 respectively. The fourth 200,000-kilowatt unit is also tentatively scheduled for 1960, with the provision that, at the option of the Commission, the in-service date may be deferred one year. An order for the turbo-generator has been placed with C. A. Parsons and Co. Ltd.

In view of the continuing increase in the demand for power, and to provide essential reserves, it is necessary that the Commission make provision for future resources well in advance of actual requirements as deliveries on large equipment of this type require 36 months or more.

Ontario Hydro resources will be increased in the next few years by more than 2,300,000 kw. in 10 separate projects, either newly authorized or under construction. The installation of the eighth unit will mark the completion of the Richard L. Hearn Generating Station.

Operating Headquarters Established at Paris

Headquarters of Hydro's Brantford Operating Area have been moved from Brantford to Paris. The office has been established in a recently renovated building, formerly used as a station by the Lake Erie and Northern Railway — a subsidiary of the C.P.R., which discontinued passenger service in 1954 — while the service centre has been located at Brant Transformer Station. The move to Paris places the operating headquarters virtually in the centre of the area it now serves since Ontario Hydro's distribution facilities, situated within the boundaries of Brantford Township, were acquired by Brantford Township Hydro-Electric Commission in 1956.

F. A. ARCHER PASSES



F. A. ARCHER

FREDERICK A. Archer, Services Accountant, Ontario Hydro, who was associated with municipal accounting work for many years, died suddenly on February 6 in Toronto Western Hospital. Educated at Marmora and St. Catharines, Mr. Archer enlisted with the Fourth Mechanical Transport at the outbreak of World War I and served overseas. He joined Ontario Hydro in July, 1919, and was payroll and cost clerk for the Chippawa power canal during construction of the Sir Adam Beck-Niagara Generating Station No. 1. Three years later he transferred to Radial Railway Accounting at Head Office, and eight years later became an assistant accountant in Hydro's Municipal Accounting Department. During Hydro's re-organization in 1948, Mr. Archer was made Internal Auditor and two years later, Credit Manager. Latterly he held the position of Services Accountant, and in this capacity he initiated administrative procedures that resulted in substantial savings for the Commission.

A charter member of the Ontario Hydro Branch of the Canadian Legion, Mr. Archer was also a respected member of Beaches Masonic Lodge No. 477, A. F. and A. M. From 1938 to 1944 he was Treasurer of the Association of Municipal Electrical Utilities (Ontario), and was auditor of that organization at the time of his death.

He is survived by his widow, the former Aura Titterington, a son, John Dean Archer; a daughter, Mrs. E. Dorsey and two grandchildren.



PETROLIA HONORS LONG SERVICE

PETROLIA Public Utilities Commission recently honored two men whose combined service records total 48 years. Garnet Kerby (left) and Frank Bartlett (centre) are shown with J. C. Bishop, Chairman of the Petrolia Commission, who congratulated them. Mr. Kerby was a Commissioner for more than 21 years, and for 10 years served as chairman. Mr. Bartlett has been a commission employee for 27 years.

TAMING A TORRENT

(Continued from page 4)

was turned over and it was found that none of the stakes was broken. So it was plain there was water enough to run the 'Ontario' through.

"The Indians who had been in the trees on the bank then went on board the vessel and the voyage began. Each piloted it in turn as far as he had observed the crib's course. The only white man on board was the engineer, and he, like Old Jock and Old Pete, was generously rewarded. Thus was made, in 1843, the first steamer trip down the rapids, and a descendant of one of those pioneer pilots now guides with trusty hand a modern boat that goes over the same course as the 'Ontario' went then. But no other steamer attempted the shooting of the rapids for fifteen years."

This summer the rapids will constitute a new spectacle for travellers and sightseers—and quite possibly a new field of exploration and adventure for geologists and archaeologists. ■

MORE POWER-BETTER WIRING

(Continued from page 5)

all expansion of some six per cent every year had been twice the rate of population growth. Canada was second only to Norway as the world's heaviest per capita user of electric energy. Low-cost power had been a major factor in industrial development, and as long as this price advantage was maintained, Canada would continue to attract new industry.

Average Consumption

"We can also expect further substantial increases in residential consumption," Mr. Winters continued. "At present the average home uses only one-quarter of what is estimated as the requirements of a fully-electrified home."

With future improvements of present appliances, development of new appliances and higher incomes, the United States looked for a doubling or even a trebling of aver-



GLIMPSE OF THE FUTURE

MEMBERS of the Association of Professional Engineers of Ontario had a glimpse of the future at their recent annual meeting, the centre of attention being a scale model of a nuclear-electric station, displayed by arrangement with Ontario Hydro. W. E. Cooper, Reactor Liaison Engineer, Ontario Hydro (third from left), explains its operation to, from left: J. H. Fenton, P. Eng., Ottawa; W. G. Williams, P. Eng., Trenton, and N. D. Pappas, P. Eng., Toronto.

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ge home consumption. Mr. Winters aid that the Canadian outlook was nuch the same.

"It is not easy to measure the rowth of industrial and residential emand for electricity, since it epends not only on how rapid a ate of growth we have for the conomy, but also the extent to hich electricity holds its own gainst other competing forms of nergy. I have seen several estimates f demand growth, and nearly all gree that the total consumption of lectric power can be expected to ouble within the next ten years and ay even treble by 1975."

Quebec, British Columbia, Newoundland, Manitoba and some arts of the north country still posessed undeveloped hydro-electric esources, he said. Increasing emhasis was being placed on thermal nits, however, and one suggestion f the Gordon Commission was that uclear power would probably be use in southern Ontario and the Maritimes by 1970. By 1980, uclear-electric stations should proide four per cent of the country's otal power requirements.

In outlining the role of electricity in the home, Mr. Winters emphasized the need for more effective distribution of electricity. There was little doubt that most older houses were inadequately wired, he said, and even in newly-built houses, wiring systems often failed to make allowance for future expansion.

National Campaign

Mr. Winters stressed that consideration should be given to a national campaign to emphasize the dangers of faulty wiring. Too often, blown fuses and blackouts were regarded by home owners as an inconvenience rather than a danger signal. As a yardstick of the great amount of work in this field, Mr. Winters gave some statistics from the Home Improvement Section of the National Housing Act. Since February, 1955, he said, some $57 million had been loaned by banks for home improvements, yet only $1,170,000 of this amount had been spent on electrical improvements.

This tremendous market for rewiring or supplementary wiring in Canadian homes could be facilitated by special lending facilities available under the Home Improvement Section. The Canadian Government was anxious to encourage all forms of home improvements, Mr. Winters said.

The speaker suggested that the Council could urge revision of the Canadian Electrical Code to ensure national uniformity and more adequate home wiring systems. It could also work for an ordered development of latent power resources, and could make a strong case for Canadian design of appliances tailored for the Canadian market.

The guest speaker left his audience on an optimistic note when he said that the electrical industry could anticipate a "buoyant future."

Another highlight of Electrical Day was the presentation of an award to John W. Kerr, who had been selected by some 6,000 electrical contractors as "Electrical Man of the Year." Mr. Kerr is Chairman of the Adequate Wiring Committee for the Canadian Electrical Manufacturers' Association. In making the presentation of a desk set to Mr. Kerr, R. E. Bailey, Chairman of the Canadian Electrical Council, commended Mr. Kerr for his service to the entire electrical industry.

—by Janet B. Monk.

17,000 YEARS' SERVICE

(Continued from page 20)

Carter Charlton, Albert G. Clymer, Frederick S. Fisher, William P. Gordon, Norman M. T. Griffin, Clarence Hogarth, Wallace V. McConnell, Morrison B. Taylor, Charles Tetley, Miss Hazel Urbach and Harry W. Rea. Deceased retired personnel: Samuel Anthony, Albert Bilbrough, Walter Davis, Fred Caskell, David Gray, Joseph Holliday, Julian Josephs, James Miles, Edgar R. Miller, John O'Meara, Sidney G. Redway, John C. Saye, William Slack, Walter Vale and Thomas Watman. Mr. Gibbs noted that total membership in the Quarter Century Club was now 800, including 286 retired personnel. ■

Honor Wingham Rescuers

HEROIC action on the part of two members of the Wingham Public Utilities Commission staff saved two lives in a near-tragedy recently. Elwyn Chamney (centre) and Jerry Barrett (right) risked their lives to rescue two small boys, who had fallen through the ice on the Maitland River. The two quick-thinking Hydro men are shown as they were congratulated by De Witt Miller, Chairman of the Wingham Commission. In his letter of commendation to the two men, who also received suitable presentations, Mr. Miller said: "Without thinking of your own safety, you risked your



lives to rescue these boys, and no doubt their parents will long remember your unselfish and prompt response."

LIVELY DEBATE

(Continued from page 19)

whole or in part to the municipal corporation.

Mr. Walker's motion provided ample fuel for discussion, but delegates failed to approve the question when it was put to a vote.

Members of the district association concurred with a suggestion that the incoming executive make arrangements with Ontario Hydro for a spring tour of the St. Lawrence Power Project by representatives of the member commissions of O.M.-E.A. District 5.

Another highlight of the afternoon business session was a brief address by Harry J. Foy, Toronto, Manager of the Electric Service League of Ontario. During his remarks, Mr. Foy urged municipal utility support for Canada's first observance of National Electrical Week during February.

Election of Officers

Climaxing this session, members unanimously re-elected W. B. Elliott, St. Catharines, as President for the 1957 term. Also named members of the executive, during the elections conducted by Ontario Hydro Commissioner D. P. Cliff, O.M.E.A. Secretary-Treasurer, were: C. R. Buss, Thorold, 1st Vice-President; Frank Kaupp, Merritton, 2nd Vice-President; Directors — Cecil Swayze, Welland; H. J. Schneider, Port Dover; George Foulds, Paris, and Roy Pierson, Brantford Township. Ray Pfaff, St. Catharines, was re-appointed Secretary-Treasurer.

Manifesting the bond of understanding between the O.M.E.A. and Ontario Hydro, the largely-attended dinner took the form of a tribute to Dr. Richard L. Hearn, former Hydro Chairman, who was presented with a roll bag for golfing accessories by President Elliott.

In reply to the presentation, Dr. Hearn said that the associations and friendships he had formed were the most prized mementoes of his lengthy Hydro and engineering career.

Turning to the question of power supply, Dr. Hearn pointed out that Ontario was rapidly approaching the point where all the "economically available hydro-electric power will have been developed."

The province was fortunate in the fact, however, that large uranium deposits were available within its borders.

"I have been advised that we have sufficient uranium blocked out in the Blind River area now to develop some 10 million kilowatts, with a one per cent 'burn-up' for the next 200 years."

The main concern, at present, was to develop nuclear energy on an economical and competitive basis with other fuels, Dr. Hearn stated. Thus, Ontario Hydro was now participating in feasibility studies relating to the construction and operation of a 150,000-kw. nuclear-electric plant.

"I am fully confident that the answer to this problem will have been found when we require the power," he concluded.

Chairman Greets Members

Paying his first official visit to O.M.E.A. District 5, Hydro Chairman James S. Duncan was accorded a standing ovation as he entered the room.

During a brief address, Mr. Duncan referred to the honor being paid Dr. Hearn by members of the district association.

"I can think of no more fitting place than in the heart of the birthplace of hydro-electric power in our province to pay tribute to Dr. Hearn."

Mr. Duncan also dwelt briefly on the fact that three Ontario Hydro Commissioners, W. Ross Strike, First Vice-Chairman, Lt.-Col. A. A. Kennedy and D. P. Cliff were all ex-Presidents of the O.M.E.A.

"Their presence on the Commission is indicative of the confidence Ontario's Legislature places in your choice of leaders."

Brief addresses were also made following the dinner by Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy, Gordon H. Fuller, O. M.-E.A. President; E. A. Washburn, A.M.E.U. President, and C. R. Buss, Thorold.

Concluding the dinner, delegates warmly-applauded an engrossing but humorous address on the subject of "Things are not what they seem" by Rev. Richard Rolls, Niagara Falls, Ont. — *by B. L. Graham.*

This and That

Public service a "must"

With some people, public service is a "must." It is interesting to note that Ross L. Dobbin, former General Manager of Peterborough Utilities Commission, is now serving on Peterborough City Council. Just recently we received a letter from J. W. Peart, who retired as General Manager of St. Thomas P.U.C. last fall. "Walt" advises that he has been busy directing a fund-raising campaign for $47,000 on behalf of the Elgin-St. Thomas United Welfare Services. However, he admitted that he might take time out to do a "bit of travelling" when that assignment ended on February 28.

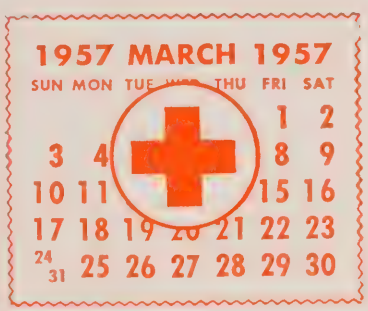
And then, of course, there's E. V. Buchanan, former General Manager of London P.U.C., who is perennially busy with his duties on the London and Suburbs Planning Board; on two advisory committees of the University of Western Ontario, and as President of The Beck Memorial Sanatorium.

There must be other Hydro "people," who are rendering valuable public service in other spheres. If so, we'd like to hear from them.

A fast clip

From faraway Fort Frances we've learned that an Ontario Hydro survey crew turned up in time to help the March of Dimes campaign in that town.

The survey party was invited to help stage a sideshow at the curling rink where the March-of-Dimes sponsoring Kinsmen Club was losing a bonspiel in competition with members of the local Rotary and Kiwanis Clubs. Naturally Kinsmen welcomed the distraction, so a red-bearded youth, George Palmer, 23, climbed on a table while some wild bidding for the pleasure of seeing him shaved proceeded.



A pair of hedge-clippers was produced, and then a regular barber turned up to do the job — but not until the audience had contributed $60.03 to help the March of Dimes campaign.

'Fare" treatment

When there's a lull in the conversation you might tell the joke about the Scotsman, who was arguing with the conductor whether the fare was to be five or 10 cents. Finally the disgusted conductor picked up the "careful" passenger's suitcase, and threw it from the coach as they were crossing a bridge. "Hoot mon," screamed the Scot, "first you try to rob me, and now you've drowned my boy."

Making "Yards" for power

Six years to the day after the first concrete was placed at the Sir Adam Beck-Niagara Generating Station No. 2, Ontario Hydro completed pouring of its 2,000,000th cubic yard of concrete on February 6 this year.

Our statisticians have estimated that this would be sufficient concrete to lay a sidewalk from coast to coast in Canada. Furthermore they report that 1,500,000 tons of sand and 2,000,000 tons of crushed rock were required to manufacture this large quantity of concrete. Another million cubic yards of concrete will be used to complete the 4,000,000,000-gallon pumped storage phase of the 1,370,000-kilowatt project.

Gaps in the ranks

On a cross-Canada tour, as President of the Engineering Institute of Canada, V. A. McKillop, General Manager of London P.U.C., told a Toronto audience recently that a shortage of engineers continued to restrict the Canadian economy. He claimed that there are only 1,600 to 1,700 graduates to fill the 5,000 engineering vacancies that occur each year.

New steel road

Before the end of the present summer, C.N.R. freight and passenger trains will be running over 40 miles of new double track on the main line between Cardinal and Cornwall in eastern Ontario. This new line will be completed by that time to bypass the area to be flooded in the summer of 1958 by the St. Lawrence Power Project.

The E's have it

It is well known that the letter most commonly used in English is E, but the *Book of Knowledge* imparts some further interesting details as to the use of letters. The one most often used to begin a word is S, and E is tenth on the list in this respect. In order of frequency of use, the first five letters are E, T, A, I and S; whereas the frequency for beginning a word runs S. C. P. A and T.



THE PROMISE OF SPRING





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ONTARIO HYDRO NEWS

CONVENTION ISSUE

APRIL - 1957

ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
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THE COMMISSION

JAMES S. DUNCAN, C.M.G.
Chairman

W. ROSS STRIKE, Q.C.
First Vice-Chairman

HON. RAY CONNELL, M.P.P.
Second Vice-Chairman

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APRIL, 1957

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"ONTARIO'S MOST PROSPEROUS YEAR"

IN PRESENTING his budget address to the Ontario Legislature recently, Hon. Dana Porter, Provincial Treasurer, unfolded a story of gratifying development and achievement across the province during 1956.

The Provincial Treasurer pointed out, for example, that capital investment in new factories, machinery, as well as other private and public physical assets increased by 25 per cent to the highest level in history.

Reflecting the province's buoyant economy was the fact that Ontario's output rose by 10 per cent, including a 10 per cent increase in the gross value of manufactured products, a record increase of nearly 10 per cent in mining production, and an approximate 9 per cent advance in pulp and paper production. Particularly encouraging were the many signs of improvement in living standards, such as a 5 per cent increase in weekly salaries and wages against a 2 per cent increase in consumer prices. This satisfactory trend was sustained by a 9 per cent rise in the total income of workers and small businesses, while retail trade purchases increased by 6 per cent.

Perhaps one of the most significant advances recorded in 1956 was the expansion of Ontario's labor force to a record level of 2,098,000 workers — 3.6 per cent more than in 1955 and 23 per cent over the 1946 level. The growing need for specialized and trained workers is being partially met by an influx of immigrant workers. Figures presented in the legislative report indicated that approximately 55 per cent of the 165,000 people, who emigrated to Canada last year, gave Ontario as their destination. Mr. Porter's address also indicated the rather astonishing fact that the population of the province was growing at the rate of 15,000 a month. The record level of immigration, of course, is partially responsible, but a rising birth rate — 26.7 births per 1,000 population — and a falling death rate are other factors underlying the phenomenal increases in the provincial population, which, since 1951, has increased 18 per cent to a total of 5,515,000 last year — a third of the national total.

One of the most accurate barometers of provincial development is, of course, the consumption of electric power. This assertion is supported by the statement of A. W. Manby, Hydro's General Manager, while addressing O.M.E.A.-A.M.E.U. delegates at their recent convention in Toronto. During the course of his review of Ontario Hydro operations (see Page 20), Mr. Manby stated, "Perhaps the best measure of our contribution to the economic life of the province is our sale of kilowatthours. This, in effect, reflects the amount of work, which the available power enables our customers to do."

Substantiating Mr. Porter's summary of augmented provincial development and output, Mr. Manby reported that during 1956, the total output of all Commission resources amounted to 29.5 billion kwhrs., representing an increase of 11 per cent over the previous year.

An examination of the figures presented by Mr. Porter and Mr. Manby, we feel, provides grounds for the claim that the year 1956 was "Ontario's most prosperous year."

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COVER SHOTS

"CONVENTION Panorama" might well be the title of our cover selections this month, depicting, as they do, a cross-section of the varied events of the 1957 O.M.E.A.-A.M.E.U. Convention in Toronto on February 25-26-27.



CHAIRMAN JAMES S. DUNCAN
Ontario Hydro

FIRST IMPRESSIONS

HYDRO is a "splendid example of the great things accomplished by Canadian citizens." This fact was emphasized by Chairman James S. Duncan during his address to 1,000 or more delegates at the largely-attended banquet during this year's O.M.E.A.-A.M.E.U. Convention.

The Commission's new Chairman, in giving his impressions of Ontario's publicly-owned electrical utility since assuming the office last November, expressed pride in the leadership which had been conferred on him by Ontario Prime Minister Leslie M. Frost.

"I am proud to be associated with men who are conscious of 50 years of outstanding achievement, but with their eyes and their minds eagerly scanning the even greater possibilities which lie ahead."

Close Relationship

It was apparent, Mr. Duncan observed, that the depth and closeness of the tie between the Commission and the municipalities "was not merely a pleasant adjunct, but an integral and inseparable feature of the entire Hydro operation."

Tangible recognition of this interdependence "by those who govern our province," was the fact that, for the first time in history, three former O.M.E.A. Presidents — W. Ross Strike, Lt.-Col. A. A. Kennedy and D. P. Cliff, "are now assisting in the policy formation and everyday guidance of Ontario Hydro at an extremely high level."

Mr. Duncan, who retired as Chairman and President of Massey-Harris-Ferguson Limited last year, spoke of the great amount of work which the newcomer to the Commission must undertake to become fully acquainted with Hydro's widespread operations.

"To you who have been brought up in Hydro," he said, "the intricacies of anionic current, inductance reactance, phraetic water, load factor and, more recently, iterated fission expectation, are no problem. They roll off your tongue with the greatest of ease. But to one who has spent his life building manure spreaders and things, they present quite a problem, and during the last four months, have occasioned me a considerable amount of homework.

"This spring, however, I plan to make an extensive tour of the principal scenes of activity of our great organization. I hope also to be able to do it in a sufficiently leisurely manner to enable me to meet as many as possible of the people who have been, and still are, responsible for the ever-growing efficiency of our hydro-electric system throughout Ontario."

Because of Mr. Duncan's background as one of Canada's leading industrialists, his reputation as an authority on education and the arts, and his personal contact with international affairs during many years spent abroad, delegates expressed keen interest in the reasons he gave for accepting his present post, and his views on the public-ownership principle, under which Hydro operates.

(Continued on page 2)



MR. DUNCAN was guest speaker at the banquet attended by 1,000 delegates.

"My prime motive in joining the Commission," he explained, "was to do something worthwhile in the interests of a country, which has done so very much for me since I landed on its hospitable shores as a young lad of sixteen.

"Premier Frost was casting around last year for a successor to Dr. Richard L. Hearn, Hydro's retiring Chairman. To his everlasting honor he had decided that, whatever appointment was made, it would not be a political one. For better or for worse his choice fell upon me.

Pride in Achievements

"Throughout the Hydro organization," said Mr. Duncan, "I have found a deep pride in the achievements of the past, and in the contributions being made to the present. It is a pride arising from the knowledge that great things have been accomplished, that light and heat and power have been brought to distant places, that the frontiers of the wilderness have been pushed farther back, and that Hydro is helping people to live a more gracious, more pleasant and more healthful life than they ever did before.

"It is a consciousness also that Hydro has played a great part in the growth, development and prosperity of Ontario, and therefore of Canada, and that all these things have been done for the benefit of the people as a whole."

This dedication to the ideals of public service was exemplified by the handling of the frequency standardization program—the largest of its kind ever undertaken on this continent—which involved a million Hydro customers.

"It has been demonstrated again by the friendly, and indeed, at times, by the generous consideration given to the 6,500 people, who, owing to the flooding of areas along the St. Lawrence River, are being moved from their home surroundings to new locations."

Operational Efficiency

Dealing with the subject of operational efficiency, the Hydro Chairman praised "the willingness to try new ideas, to check with similar organizations to see whether methods used elsewhere could be employed to advantage by ourselves, and a prevailing spirit, which, in many respects, replaces the profit motive of private industry."

This, in Mr. Duncan's opinion, constituted a dedication to the original concept of Hydro—"the concept of supplying electricity to the people of Ontario at the lowest cost, consistent with sound economy."

Mr. Duncan said it was a tribute to the versatility and open-mindedness of Hydro's leaders, scientists and engineers that they had been able, in so short a time, to turn their minds "from the well-trodden paths of hydro-electric and thermal-electric power to the intricate but promising field of nuclear energy."

Speaking of the future, the Chairman said the fact that Ontario was standing at the threshold of a new era of power development "is surely beyond question." He mentioned the possibility that Hydro sometime in the future would be using atomic particles fissioning under precisely controlled conditions in nuclear reactors.

"How long it will take to round this corner cannot be forecast with precision today."

Assisting Uranium Industry

It was interesting to reflect further on the implications which the widespread use of nuclear fuels would have for Ontario and for all of Canada, in view of the recent prediction that Canada would be the world's largest producer of uranium within a year.

Ontario Hydro, Mr. Duncan pointed out, was materially assisting



the growth of the uranium mining industry by expending almost $10 million on the construction of additional transformer and transmission facilities in the Blind River district alone.

"It is interesting also, and gratifying to all who have helped build up the great Hydro organization, to think of the many career opportunities, which exist today, and will exist to an ever-growing extent, for the young people, who will eventually occupy the positions we now hold."

In concluding his address, Mr. Duncan said "With its first half-century behind it, Hydro stands now at the threshold of another period of great development. The future will call for the combined effort, the untiring devotion and loyalty of us all. Though I have been with you but a short time, I feel that, together, we will be equal to the task." ■

"TAKE IT EASY"

EMOTIONAL stresses imposed by modern living conditions were destroying lives faster than cancer, warned Joseph O. Connell, guest speaker at a joint O.M.E.A.-A.M.E.U. luncheon during this year's annual convention. Mr. Connell, who is General Secretary of the Kitchener-Waterloo Y.M.C.A., addressed over 800 delegates attending the luncheon. Dealing with the subject, "Take It Easy," the speaker discussed the dangers of stress and strain, particularly as they affected the modern businessman. Included in Mr. Connell's talk were some helpful suggestions on forming a better attitude to stress, finding peace of mind, and, finally, how to live a longer and happier life.

Presenting some interesting and often humorous comparisons between life in grandfather's time and today, the speaker emphasized that stress and nervous pressure had increased tremendously in the last 50 years. Mr. Connell said that many businessmen felt they were reaching the breaking point where unrelieved pressure would destroy both body and mind.

"Men like yourselves are high on the destruction list," Mr. Connell warned his audience, "because you bear heavy responsibilities in giving service — to your district, your commission and the public." Some doctors claimed that 80 per cent of all sickness was the result of too much mental and emotional stress. Mr. Connell also quoted one estimate that one of every eight children, ten years of age and under, would require mental treatment during his lifetime as a result of the tendency to live at top emotional speed.

In order to combat these alarming statistics, Mr. Connell said that peace of mind and the art of relaxation were of utmost importance. He quoted Marcus Aurelius, who said: "A man's life is what his thoughts make of him," and suggested that peace of mind stemmed from within. Fear, turmoil, worry and bitterness were all enemies of this peaceful state. The speaker's advice for finding peace of mind was to "take it easy, first on yourself and second, on those around you." The man who believed in himself, who knew his own values, and started and ended his day calmly, was well on the road to being a better person. Quoting Confucius, Mr. Connell reminded his audience that "a superior man is always quiet and calm."

In emphasizing the importance of learning to relax early in life, the speaker asserted his belief that the man, who said he would relax when he retired, seldom lived to retire, and likewise the man who announced that he would relax when he became rich never lived that long. Finding a happy outcome from one's experiences was another way to achieve peace of mind, Mr. Connell pointed out. He brought forward two other suggestions, "Stop doing what's bothering you," and "Don't keep your troubles to yourself." Almost as important as "taking it easy on yourself," Mr. Connell felt, was "taking it easy on other people." To have faith and pride in neighbors and business associates, and to be truly interested in others were important ways of improving relationships.

Other speakers at the luncheon were Controller Ford Brand, who brought greetings from the City of Toronto, and Hon. T. Ray Connell Second Vice-Chairman of Ontario Hydro, who extended greetings from the Commission and expressed wishes for a successful convention.

—by Janet B. Monk.



O. M. E. A. delegates urge campaign to promote public appreciation of Hydro service

RESOLUTIONS asking Ontario Hydro to inaugurate an advertising campaign to advise the public of the many uses of electric energy and requesting the Canadian Government to enact legislation requiring that all electric lamps sold in Canada be clearly marked as to voltage and life-hours were among those unanimously adopted by O.M.E.A. delegates at this year's convention in Toronto. The presentation of the resolutions was effectively handled by Bert Merson, Chairman of the Toronto Hydro-Electric Commission and Executive Vice-President of the O.M.E.A.

Several resolutions had been placed in respect to the competition from natural gas, one from the Sarnia Hydro-Electric Commission, another from the A.M.E.U. Executive Committee, and still another from O.M.E.A. District 4. Sarnia H.E.C. urged that Ontario Hydro inaugurate a program at once to publicize the advantages of Hydro service, in conjunction with the Public Relations Committee of the A.M.E.U. The resolution urged that all publicity material, including newspaper and magazine articles, mats, and advertisements be so designed that they could be used locally by the municipal utilities. Similarly, the A.M.E.U. Executive Committee felt that, with increasing competition from natural gas, and because Hydro appliance shops of the utilities were maintained chiefly as promotion agencies, that Ontario Hydro should be requested to inform Hydro users

BE IT, THEREFORE, RESOLVED

in Ontario of the advantages of the use of electricity, as against those of natural gas.

The Resolutions Committee recommended the adoption of the resolution from District No. 4, feeling that it embodied the subject matter of the other resolutions.

This resolution was as follows: "That, whereas there has been no concentrated effort by The Hydro-Electric Power Commission of Ontario for many years to sell electric energy, therefore, be it resolved that we ask the Ontario Municipal Electric Association to request The Hydro-Electric Power Commission of Ontario to inaugurate a campaign to advise the public in the many uses of electric energy."

"As Hydro municipalities," said Mr. Merson, speaking to the resolution, "we are not in the least afraid of competition. If we are afraid of competition, we shouldn't be in business. But I don't think we should stand idly by and see any other form of fuel subsidized and encouraged by governments. Nor can we stand idly by and see our great public utilities ignored."

Observing that the appointed and elected commissions of the province and the municipalities had invested in trust for the public, a sum greater than two-and-one-half billion dollars, Mr. Merson said there was no desire to stop competition from natural gas.

"We do object," he added emphatically, "to indirect subsidies, undue encouragement, and, particularly, to encouragement from top government officials."

In backing up the resolution, J. T. Barnes, of Sarnia, said that some municipalities had run into competition more or less disparaging Hydro. The real competition, he felt, was between management and business and not between products and services.

"If we don't have the necessary machinery to combat the propaganda the natural gas people will be putting out," said Dr. V. S. Wilson, Etobicoke Township, "we will feel the effects. They have a highly-organized sales force. As things stand, we will probably spend some $200,000 in the coming year throughout the province to sell Hydro. Last year, in Toronto alone, the gas company spent $250,000 on advertising."

Mr. Merson stated there was no immediate shortage of power, but there was an immediate challenge in the situation.

"The cost of gas from the west cannot yet compete with coal," argued Mr. Phelps. "We at Hydro shouldn't fear the future. Gas lines can only carry so much gas."

There had been a natural gas supply in southwestern Ontario for many years, said C. S. Phelps, Sarnia. During World War II, gas had been restricted. Now, the gas companies had mended their fences

(Continued on page 6)



The convention adopted the resolution unanimously.

Special Committee

A resolution submitted by O.M.E.A. District 8, touched off an equally hot debate. The resolution was as follows:

"Whereas, it is understood the Ontario Fuel Board will not issue permits to use natural gas for space-heating in the area served by certain gas companies unless there is a year-round load, such as a water-heater or range in addition to the space-heating equipment,

"And whereas, the practice has resulted in a great many householders being forced to dispense with electric water-heating equipment, with which they had been quite satisfied, in order to obtain the desired space-heating permit,

"And whereas, this form of conditional agreement is in violation of ethical business practices, and has created hardship in forcing householders to purchase equipment that they did not need,

"Therefore, be it resolved that District No. 8, O.M.E.A., in session in Point Edward this 12th day of October, 1956, requests the Ontario Municipal Electric Association to appoint a special committee to study this situation, and to suggest ways and means of correcting it, and that it be forwarded to the O.M.E.A. Executive Committee for action."

Mr. Merson explained to the convention that the situation outlined in the resolution applied very largely to the western section of the province. Back in 1952, one of the western municipalities had raised objections to the Ontario Fuel Board permitting gas companies to install gas-heating unless it were accompanied by other gas appliances. The Fuel Controller, Mr. Merson said, had declined responsibility in the matter, "but, at least, he condoned the practice."

"This is just as bad," Mr. Merson contended, "as though he had actually brought it into being. When a government official agrees to put in a regulation at the request of a company, because the company contends its rate structure will not permit it to operate otherwise, he is going beyond his duties. The company should do what a Hydro municipality would have to do in a like instance, and revise its rates accordingly."

The gas company in question, the speaker went on, had contended that the space-heating period in Ontario was five months. Mr. Merson expressed the view that this period, generally speaking, was eight months.

"What would happen to any coal merchant, who would not sell you coal, unless you bought your kindling from him as well? Or an oil company that would sell you fuel oil only if you agreed to buy all your gasoline for your car from that firm? Or an electrical utility that would not supply lighting, unless the customer bought a lot of electrical appliances? In the case of a Hydro municipality, I can tell you that the commission that did such a thing would not be re-elected!"

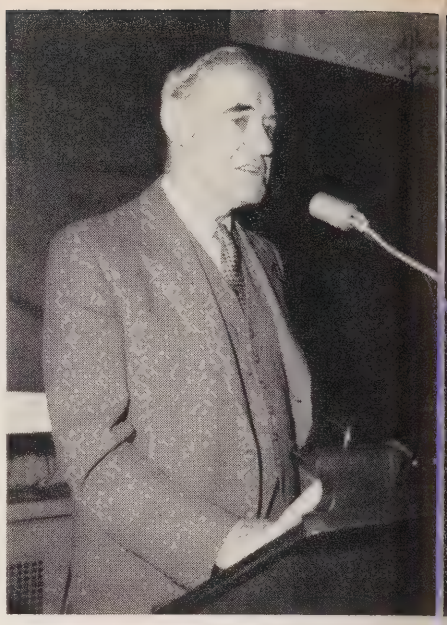
John T. Barnes said it was the duty of any utility to give service. In the same way, it behooved the gas company in question to give service.

"It is bad taste for them," he declared, "to seek restrictions. This is a throwback to war days, and the company should have to live up to its commitments as a utility."

The resolution carried unanimously.

Inferior Lamps

The competition from imported inferior electric lamps was criticized in a resolution originated by the Welland Hydro-Electric Commission. As the original resolution asked Ontario Hydro to petition the Ontario Government in this matter, whereas it pertained to a matter under Federal jurisdiction, the Resolutions Committee proposed a substitute resolution, which carried unanimously, as follows:



BERT MERSON, Toronto

"Resolved that this association petition the Dominion Government to enact legislation requiring that all electric bulbs sold in Canada be clearly marked as to voltage and life-hours."

Mr. Merson pointed out that, as the resolution was aimed against foreign competition, and was dealing with a matter of trade and commerce, it was a subject for the Government of Canada, and not the Canadian Standards Association or any other body. The O.M.E.A. had the right, the privilege, and the duty to petition the Government of Canada to bring an end to this unfair practice. If, in the process of presenting the petition, it were found necessary to secure the support of the C.S.A., that support would be sought.

That hardy perennial, co-operative fire insurance, came closer to blooming at this convention than it has in discussions during previous meetings. A resolution from the Grand Valley Municipal Electric Association had asked, that, in view of the fact that many large corpora-



DR. V. S. WILSON, Etobicoke Township



ROY WARWICK, Blenheim

ions carried their own fire insurance overage, and that municipalities urchasing power from Ontario Hyro took group coverage for public iability and property damage, Ontario Hydro be urged to investigate he economics of carrying its own ire and truck insurance program, nd, after ascertaining the savings esulting from such a policy, the Commission arrange group fire and ehicle coverage on behalf of the nunicipalities.

Mr. Merson observed that statistics did not tell the entire story, lthough figures would show what ould be saved, particularly in fire osses. There was a great variety of uildings and building bylaws hroughout the province, he said, s well as a variation in fire protection.

"With all due respect to the committees that have reported over the ears," he said, "we have no data n these subjects. We should ask hat Ontario Hydro and our committee collaborate on preparing this lata. But I do not think we can xpect such a report within a year."

Indicating agreement with such a plan, Harvey Hawke, veteran Galt Commissioner and long-time champion of the proposal, urged that the resolution should read "as soon as possible." The municipalities had saved between one and two million dollars on public liability insurance. A co-operative plan of fire insurance, he was certain, would likewise effect an immense saving.

"It is not going to be as difficult as you might imagine for Ontario Hydro to formulate a plan," Mr. Hawke argued. "There is a plan already set up by the Tariff Board. We have not been too hasty when you think of all the years we have been investigating this!"

A substitute resolution was proposed by the Resolutions Committee: "That this Association now assembled urge The Hydro-Electric Power Commission of Ontario to investigate the economics of carrying fire and motor vehicle insurance on behalf of the Hydro municipalities, and that such investigation be in collaboration with our committee on fire insurance, and that a report and recommendation be made to the directors of the association prior to our next annual meeting for submission to the convention before any action is taken."

An amendment from the floor proposed that Ontario Hydro proceed to draw up a plan for its own truck and fire insurance program, and report back to the next convention.

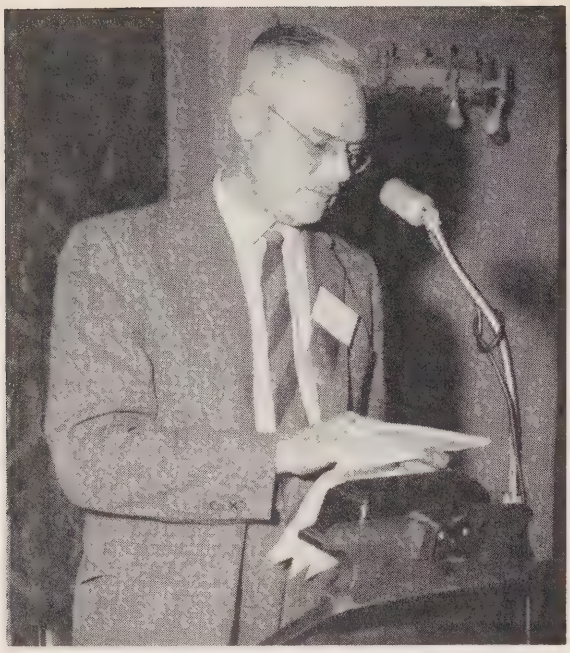
The amendment was defeated by a vote of 42 to 33, and the proposed substitute resolution then carried unanimously.

Voting Representation

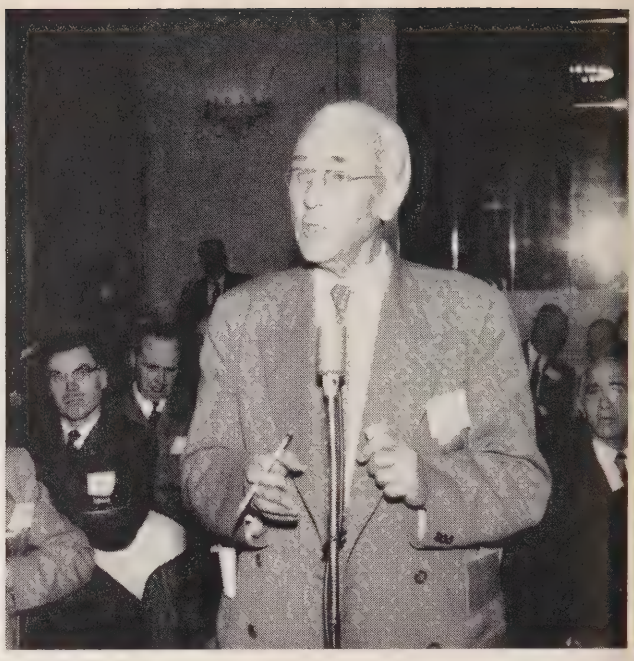
Considerable discussion revolved around a resolution passed at the 1956 Convention requesting the O.M.E.A. to appoint a special committee to review the methods of representation and voting in the association.

Mr. Merson, presenting the report of the Executive Committee on the matter, pointed out that the intent of the resolution appeared to be a desire to give larger municipalities

(Continued on page 8



T. J. MOFFAT, Listowel



H. O. HAWKE, Galt

greater voting strength based on power consumption. The present constitution provided for this, in part, by stating that "in questions involving policy or the expenditure of money, a poll may be demanded," which would lead, under those circumstances, to the voting being on the basis of power consumption.

The membership fees of the association, Mr. Merson pointed out, were also based on power consumption, "but to apply this rule to general representation and voting at an annual meeting or convention, would not, in the opinion of the executive, be in the best interests of the association, as there would be the possibility of the smaller municipalities being overwhelmed, followed by their loss of interest and possibly membership in the association."

The Executive Committee felt, too, that if such a change were made in the constitution, the same principle should apply to district associations, where, in every instance, large power-using centres could dominate the proceedings. Such a change could easily result in the deterioration of the organization and its usefulness. The practice, Mr. Merson said, was tantamount to permitting the owner of a large house to have more votes than a small home owner in civic elections or large corporations having voting power based on assessment.

In view of all this, the Executive Committee report proposed the following motion, which was adopted unanimously by the convention:

"Resolved that we, the Executive Committee of the Board of Directors of the O.M.E.A., having duly considered the resolution on representation and voting in the O.M.E.A., do hereby declare our satisfaction with the present constitutional requirement, and that we so recommend to the next annual meeting of the O.M.E.A."

The appointment of D.P. Cliff to the Commission was heartily endorsed in a resolution, which also expressed satisfaction that Mr. Cliff had decided to continue to act in the capacity of Secretary-Treasurer of the O.M.E.A.

Another resolution expressed complete satisfaction with the manner of the re-organization of the Commission, and requested that this be conveyed to Prime Minister Leslie M. Frost and members of the Ontario Legislature. The resolution took note of the fact that three Past Presidents of the O.M.E.A. — W. Ross Strike, Lt.-Col. A. A. Kennedy and D. P. Cliff — were now members of the Commission, and voiced appreciation of the honor conferred upon Mr. Strike in the confirmation of his appointment as Hydro's First Vice-Chairman.

Resolutions of appreciation were tendered to: J. A. Blay, Ontario Hydro's Director of Information, and his staff; to W. R. Mathieson, Secretary of the A.M.E.U., for the splendid co-operation given in making possible another successful annual meeting; to the Editor and staff of *Ontario Hydro News;* to the management and staff of the Royal York Hotel and other Toronto hotels for the assistance and service given to convention delegates; to the daily press for its coverage of the proceedings, and to the Entertainment Committee. — *by Horace Brown.*

NEW HOME OWNER

Official opening of modern utility building marks another milestone for thriving Port Credit

ANOTHER long-time member of the Hydro family of municipalities joined the proud ranks of new "home-owners" recently, and more than a hundred friends and neighbours gathered to say "well done."

On this occasion it was the Port Credit Public Utilities Commission, which had ordered the moving van, but the reason for changing the address was the same that has motivated so many similar moves throughout the province in the post-war years — electrical progress.

Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy, participating in the ribbon-cutting ceremonies, told the large group of P.U.C. officials, their guests and townsfolk, gathered in the bright sunshine in front of the trim new building, that "by moving into renovated and larger headquarters your local public utilities commission is ensuring that it will be able to do a job, which is essential to the well-being and comfort of the community with a maximum efficiency."

The speaker cited the great development that had taken place in historic Port Credit since the township was laid out in 1834, and he forecast an even brighter future with the coming of the St. Lawrence Seaway, and its inevitable effect upon the communities of southern Ontario. He pointed out that, from 1945 to the end of 1956, the peak power demands in Port Credit had shown an increase of more than 400 per cent — rising from 1,022 kilowatts to 5,155 kilowatts. In the

(Continued on page 45)

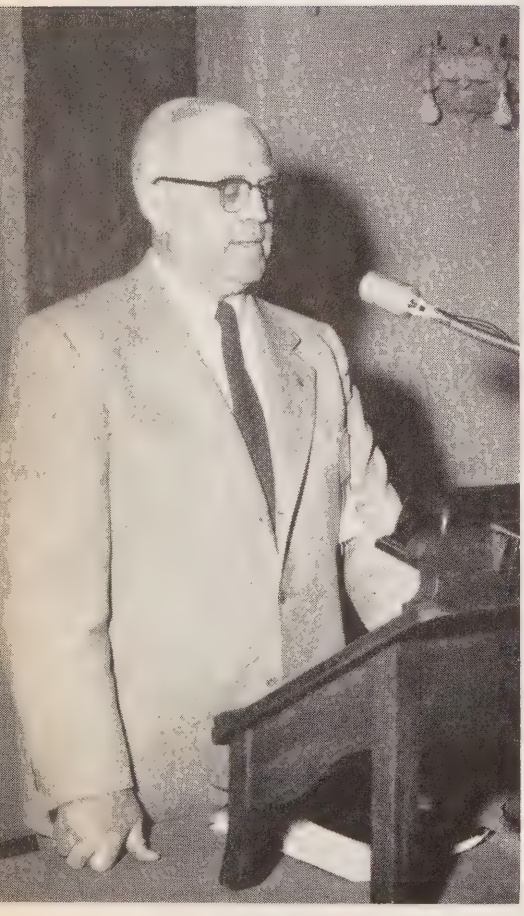


LT.-COL. A. A. KENNEDY, Ontario Hydro Commissioner, addresses the gathering prior to cutting the ribbon to open the new building. Looking on, left to right, are: Chairman A. F. Warner, Commissioner S. B. Bradley, Vice-Chairman E. C. Drew, Manager E. S. McNeice, Rev. J. A. Langston and Ontario Hydro Commissioner D. P. Cliff.



REPRESENTATIVES of Port Credit P.U.C., left to right: Mr. Warner, Mr. McNeice, Mr. Bradley and Mr. Drew expressed their appreciation to Col. Kennedy by presenting him with a silver tray.

1956 IN RETROSPECT



GORDON H. FULLER
O.M.E.A. President

WHILE there had been many events important enough to record in Ontario Hydro's relatively short history, the year just closed — the Golden Jubilee year — was perhaps the most memorable, Gordon H. Fuller, President of the Ontario Municipal Electric Association, told delegates in his inaugural address at the 48th annual convention this year.

The numerous occasions when Ontario Hydro was accorded public recognition of its accomplishments of the past 50 years were alone sufficient to set 1956 apart as an outstanding year, Mr. Fuller asserted.

But the Golden Jubilee observances also prompted those associated with Hydro to reflect on the courage and foresight of its founders, and to draw from it renewed inspiration to safeguard and conserve the policies, which the "Fathers of Hydro" had established.

"We give little, if any thought, to the labors of a few determined individuals, who, a half century ago, when Ontario was still an undeveloped province, envisaged both Hydro and the province as they would be in the years ahead," Mr. Fuller said. "Yet who among us would have the courage, much less the foresight, to predict for the next 50 years the extent to which power from many sources, some undreamed of today, will make life even more liveable than the high standard we now enjoy? We are too prone to consider Hydro as we now see it, coupled with the present highly developed state of this province."

He reminded his audience that when E. W. B. Snider, D. B. Detweiler and Adam Beck conceived the idea of Hydro, Canada had only seven provinces and its settled area was just a narrow strip along a single railway, which crossed the country not far from the United States border — a railway which connected small, isolated communities separated by broad stretches of wilderness.

The country's population was only about 5-1/3 million in 1901, and its natural resources had scarcely been tapped.

In Ontario, which, with Quebec, then had 71 per cent of Canada's population, the only oil fields in the western part of the province produced just enough kerosene to fill Canadian lamps and stable lanterns. The gold mines in the north were still to be discovered. The copper-nickel ore of Sudbury



MEMBERS of the 1957 O.M.E.A. executive: seated, left to right — Bert Merson, Toronto; President Gordon H. Fuller, Windsor; C. R. Buss, Thorold; D. P. Cliff, Dundas, Secretary-Treasurer; Dr. R. A. Patterson, Kemptville; H. O. Hawke, Galt; standing — Frank Kaupp, Merritton; J. M. Lowe, Uxbridge; Lt.-Col. A. A. Kennedy, Owen Sound; Dr. V. S. Wilson, Etobicoke Township; Thos. A. Cada, Tecumseh; George H. Glover, St. Marys, and George O'Neill, Nipigon Township. All members of the 1957 executive were not present.

and a few small developments at the west end of Lake Superior constituted the province's known mineral wealth at the time. The average person was convinced that the climate in the area north of Sudbury was suitable only for Indians or Eskimos.

Such was Ontario when Hydro was born and that was Ontario just 50 years ago, Mr. Fuller said. Two months ago, Premier Frost expressed his belief that the population of Ontario would pass the 5½ million mark this year, exceeding that of Canada 50 years ago. The province could not have developed to this extent without cheap and abundant power, the speaker asserted.

Referring to the various ceremonies held during 1956 to celebrate Hydro's 50th anniversary, Mr. Fuller congratulated the Editorial Board of *Ontario Hydro News* on the publication of a Golden Jubilee issue. "The historical record contained in the Jubilee issue can be a concise and useful reference booklet in municipal public libraries throughout the province," he said.

Tribute to Pioneers

"The names of Snider, Detweiler and Beck should appear in bold print in the history being taught in our schools, for it is these students and their children who will benefit in increasing measure from the efforts of Hydro's pioneers," Mr. Fuller said. "And it should not be forgotten that we, assembled here today, are in no small degree the executors and trustees of that legacy. Like all trusts, it should be administered for the benefit of those for whom it was intended — the people of the province."

Mr. Fuller expressed gratitude that the Robert H. Saunders Memorial was being built adjacent to the Ontario Hydro Head Office on University Avenue in Toronto.

"What could be more appropriate than that the lasting and tangible tribute to the two great advocates and exponents of Hydro, Sir Adam Beck and Robert H. Saunders, should be located so as to keep silent watch on not only where their own tasks were performed, but also adjacent to the offices from which Hydro will be directed in the years ahead?"

Commends O.M.E.A.-A.M.E.U.

The president commended the O.M.E.A. members for their interest and co-operation, both within their own organization, and with Ontario Hydro. He also expressed appreciation to the A.M.E.U. for its assistance. Mr. Fuller reported that nine district meetings were held during 1956. With an average attendance of about 180 at each meeting, it was conceivable that the thinking and opinions of 1,500 individuals from all sections of the province, when translated into action, became an authoritative voice, which would neither be disregarded nor brushed aside. The speaker commended A.M.E.U. President E. A. Washburn, who "accompanied me to all

(Continued on page 12)



D. P. CLIFF LAYS A ROSE ON THE OPEN BIBLE IN MEMORY OF EACH DECEASED COMMISSIONER

Requiem

They are not dead; life's flag is never furled:
They passed from world to world.

—Edwin Markham.

With lights in the assembly hall dimmed, save one which shone on an open Bible, O.M.E.A. delegates paid tribute to the municipal Hydro commissioners whose labors on behalf of the O.M.E.A. and their communities had been brought to a close during 1956.

"In any organization as large as this, it is inevitable that there will be changes from year to year," said President Gordon H. Fuller. "Familiar faces are missing and persons whom we were accustomed to meet are no longer here."

They were not, however, forgotten. While the delegates stood at silent attention, recalling unforgettable associations with the departed men, Mr. Fuller read each name and O.M.E.A. Secretary-Treasurer D. P. Cliff placed a crimson rose upon the open Bible in recognition of their services. Honored were 11 Commissioners: Edward Silver, Meaford; George Clark Wright, Kingston; Fred Barraclough, Beamsville; Dr. C. H. Reason, London; H. C. Rivers, Exeter; Harry T. Buehlow, Walkerton; William P. Dale, Brampton; David Hurrie, Midland; S. J. Babe, Oshawa; H. D. Cleminson, Wellington, and George Mosbaugh, Huntsville. Tribute also was paid to the memory of the late E. G. "Punch" McCracken, Toronto, and Fred Biette, Chatham, Hon. Vice-President of the O.M.E.A.

"This group is always the poorer when the names of such men are erased from the scroll," said Mr. Fuller.

1956 IN RETROSPECT

(Continued from page 12)

parts of the province at no small sacrifice to himself."

"It is most important that the O.M.E.A. and the A.M.E.U. be in unison in advancing the interests of the Hydro consumer across the province," he said. "There is the utmost harmony between these two groups. Each has its own sphere of activity, but they interlock rather than overlap, and they can be knitted into a cohesive organization. There is, as well, the closest and most cordial relationship between these two groups and Ontario Hydro. This is as it should be, and nothing can so well guarantee future satisfactory Hydro service than that this relationship continue."

His suggestion for improvement was that wives of O.M.E.A. members be invited to meetings.

"As Commissioners, we may think that running a Hydro system is a man's job," he said. "To a point that may be true, but when that point becomes the service box in the home, from there on, the lady of the house takes over.

"She is pretty much responsible for the various home activities which consume kilowatthours. She knows better than we do the changes in the design of electrical appliances, which make them more serviceable. Women are interested in what you do and they can be made more conversant with your work if you bring them to your district meetings."

Furthermore, Mr. Fuller said, he had observed that the presence of women improved meetings both socially and educationally. And while they did not necessarily participate in discussions they saw to it that their husbands were in attendance, and that they appeared on time.

"Give the ladies the consideration they deserve," he suggested.

—by Oli Daum.

"In Grateful Recognition"



SEVERAL long-service commissioners attended the convention banquet to receive their scrolls personally. The Hydro veterans are shown in this group: front row, left to right — O.M.E.A. President Gordon H. Fuller, M. Schilbe, Zurich; H. W. Smith, Waterford; C. J. Graham, Woodbridge; C. V. Ellis, Iroquois; H. G. McCandlish, Stayner; R. M. Johnston, Port Dalhousie, and O.M.E.A. Secretary-Treasurer D. P. Cliff; second row—J. F. Edwards, M.P.P., Palmerston; G. H. Forestell, Marmora; W. Ross Strike, Hydro's First Vice-Chairman, who made the presentations; A. Brooks, Hagersville; A. G. Farnell, Georgetown; Dr. A. H. Reid, Arnprior and A. L. Gilhuly, Wallaceburg.

MUNICIPAL service totalling 385 years was recognized at this year's O.M.E.A.-A.M.E.U. Convention as the Ontario Municipal Electric Association honored 23 of its members with long-service awards.

Representing 21 Ontario municipalities, the veteran utility commissioners, with 15 or more years' service, received prolonged applause from the assembled guests as they were presented with their awards during the convention banquet.

Continuing a tradition established in 1954, W. Ross Strike, First Vice-Chairman of Ontario Hydro, and a member of Bowmanville Public Utilities Commission for 23 years, made the formal presentations.

Assisted by Ontario Hydro Commissioner D. P. Cliff, O.M.E.A. Secretary-Treasurer, Mr. Strike presented framed illuminated scrolls indicating the "grateful recognition of their contribution to the progress of the municipal Hydro systems," and citing their "loyalty" to the ideals of our province-wide, publicly-owned hydro-electric systems."

Notable among the group receiving this year's awards was Dr. William C. Tweedie, Rockland, who was honored for 22 years' service. With 21 years' service, Arthur E. Weldon, Stouffville, also received a certificate.

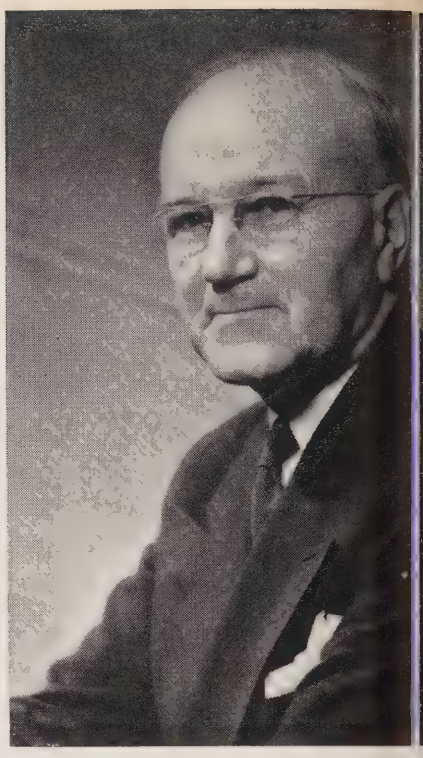
With two decades of service to their credit, William E. Perdue, Clinton; H. H. Knoll, Port Colborne, and Dr. A. H. Reid, Arnprior, each received the framed scrolls.

Dr. E. R. Langs, Lynden and W. A. Blackburn, Stayner, were honored for their individual records of 19 years' service.

Also receiving the O.M.E.A. accolade were: G. H. Forestell, Marmora, 17 years; Joseph Houle, Rockland, 16; C. P. Cashman, York Township, 16; Albert Brooks, Hagersville, 15; Earl Denstedt, Wellesley, 15; J. F. Edwards, M.P.P., Palmerston, 15; Claude V. Ellis, Iroquois, 15; A. Graham Farnell, Georgetown, 15; A. L. Gilhuly, Wallaceburg, 15, Clarence Graham, Woodbridge, 15; Robert M. Johnston, Port Dalhousie, 15; W. C. Johnstone, Finch, 15; H. G. McCandlish, Stayner, 15; Herman W. Smith, Waterford, 15; W. R. Sweetnam, Hespeler, 15, and Mildred Schilbe, Zurich, 15. ■

POWER AND THE FUTURE

Hydro's First Vice-Chairman predicts many new devices will expand electrical demands



W. ROSS STRIKE

First Vice-Chairman, Ontario Hydro

MUNICIPAL electrical utility representatives and manufacturers were urged at this year's O.M.E.A.-A.M.E.U. Convention to collaborate now with Ontario Hydro on plans to meet a colossal growth in demand for electric power, which is expected to develop during the next half century.

W. Ross Strike, Q.C., First Vice-Chairman, Ontario Hydro, said that new trends in living and new appliances—already in experimental stages and developing quickly—would require much more electric energy and distribution systems with greater capacity in the next few years. Unless preparatory action were taken immediately, electric power suppliers would, in future, have to exert themselves to keep pace with consumer demand, and they would also be faced with higher costs.

Mr. Strike said some of the new devices, which would create the tremendous demand for more electricity, were already available for a limited market; others would be in common use within the next ten years, and more were still in the planning stage. He cited them as:

1. Electronic lighting, currently being developed, which will permit whole ceilings or walls to be lined with glass panels. By adjusting one knob, the level of brightness can be controlled, and by the use of another knob, the color of the panels can be changed to any desired shade;

2. Electronic ovens using microwaves to cook food in a matter of seconds, permitting it to be served in the same dish in which it was cooked;

3. A self-rinsing sink, featuring a warm-air hand dryer, power-driven pot scrubber, and a water control that may be pre-set to measure out a specific quantity of water at any selected temperature;

4. Television sets without antennae or cabinets, allowing the flat TV screen to be hung on the wall like a picture, and home recordings of TV programs by means of electronic tape;

5. Plastic refrigerators, which may be cut to any size or shape, custom decorated to match any kitchen;

6. Electric toilet systems, which will eliminate sewage disposal plants;

7. A radiant heating panel to be suspended above the bed to keep sleepers comfortable without blankets. The panel may include a TV monitor screen to enable parents to keep close watch on children in the nursery;

8. An ultra-fast method of vulcanizing, using a standard electro-static generator to beam two-million-volt electrons at a silicone gum to convert it into rubber. It will produce a better rubber in two seconds than is yielded in several hours by conventional vulcanizing methods.

Electrical Heating

Electric energy would also be used for heating purposes, Mr. Strike said. In the United States there were already 250,000 homes and 18,000 commercial buildings whose entire heating needs were served by electric resistance heating, plus about 12,000 heat pumps. In 1957, electric heating in the United States was expected to consume four billion, 200 million kilowatthours, increasing by 1970 to more than 77 billion kilowatthours, which would account for 15 per cent of the total electric energy used by domestic customers.

A 70-store shopping centre in

Minneapolis was built around a roofed, 800,000-square-foot court, which had no conventional steam boilers, radiators, gas or oil burners, but only a heat pump system, Mr. Strike said.

The system had taken, in its stride, a nine-day cold spell with temperatures as low as 11 degrees below zero; it supplied cold air in summer and air-conditioning the year-round, and was installed at a substantially cheaper cost than a conventional heating and cooling system.

While many of these electrical developments might seem fantastic, anyone who had been following present trends in the use of electricity had no doubt that they would materialize, and that "the longer we postpone inevitable changes, the more it is going to cost us," Mr. Strike said.

"In the future, people will be increasingly dependent upon a plentiful and uninterrupted supply of electric energy," he said. "It is our job now, and in the future, to so plan, develop and operate that an adequate supply of electric energy is available at all times to meet the demand."

Over-Capacity Equipment

If population and economic growth continued at an accelerated pace, it would be more economical over a long-term period to acquire over-capacity equipment rather than save a few dollars on lower-capacity facilities, and take the risk of enlarging later at greater expense.

Mr. Strike, a member of the Commission for 13 years, said that it would be necessary to plan for more underground and off-the-street construction in order to create modern distribution systems.

"Now is the time to tackle this thing because every day, as our municipalities expand, we are passing up opportunities to make a start, and later we will have to pay the penalty of soaring costs," he said.

Another urgent problem was that of inadequate wiring. Addressing his remarks particularly to local utilities, electrical contractors and appliance dealers, the speaker emphasized that adequate wiring must be stepped up considerably.

"This can best be done at the local level," Mr. Strike said. "It is your customers who are directly affected, and you should take the initiative to see that they are fully protected and receive the best information and service."

Nuclear Energy

Turning to the question of power generation in the future, Mr. Strike pointed out that Ontario Hydro was now developing its last major source of hydraulic energy, although smaller sources would be completed when it was found economical to fit them into the system. Any major power generation would, however, probably come from thermal plants, using either conventional or nuclear fuel, since Ontario had an abundant supply of uranium ore.

Mr. Strike recalled that Ontario's future economic development in 1925 had been based on "falling water." By 1965 it could well be based on "heavy water," he said.

"That is the main reason the Commission is constantly directing its attention to all phases of research in this country and elsewhere in the nuclear field of thermal generation. As we proceed farther into the future, the percentage of hydraulic resources to the total capacity will, of course, become less, but for the foreseeable future, it will be exceedingly useful and helpful."

In closing, Mr. Strike expressed the belief that Ontario's Hydro organization had never been in a stronger or more efficient condition at both the provincial and municipal levels than at present.

"The co-operation that is so essential is excellent and I wish to express the thanks of the Commission to both the local commissioners and managers for the manner in which they are pulling their full share of the load.

"As a team we either survive and go on to greater achievements or we fail and go down together. As for me, I look to the future with a firm and abiding confidence, and with a sure conviction that we will do an even better job than we have done in the past."

--by Oli Daum.

DELEGATES LISTENED INTENTLY TO MR. STRIKE'S PREDICTIONS.





E. A. WASHBURN
A.M.E.U. President
1956 - 1957

Reorganization Pays Dividends

Benefits in the form of improved efficiency and greater recognition within the industry were already accruing to the Association of Municipal Electrical Utilities as the result of the constitutional reorganization, which was put into effect during 1956.

In his address at the opening session at the recent O.M.E.A.-A.M.E.U. Convention in Toronto, President E. A. Washburn said, "I am pleased to report that our present organization is able to cope with problems in a much more efficient and satisfactory manner than was formerly possible."

Mr. Washburn explained that under the present system, with four section chairmen, there were standing committees who, in turn, had established sub-committees to deal with those subjects most likely to concern an electrical utility. Should a problem arise outside their scope, he said, a special committee was immediately appointed. "It is only now," the president continued, "that the A.M.E.U. is actually able to play its right and proper role in the industry, and I am happy to say that its work is recognized by other electrical associations in this country." He emphasized that, in the past 12 months, 67 committees had participated in 163 meetings.

The speaker also announced that he, together with the Secretary and the Chairman of the Engineering Section, had officially represented the A.M.E.U. for the first time at the convention of the Canadian Electrical Association held in Quebec City in January this year. The A.M.E.U. was now officially recognized by the C.E.A., and Mr. Washburn noted that, in the future, the technical minutes of the two associations would be exchanged in order to avoid any overlapping of studies. He said that affiliation or liaison was also being maintained with the Canadian Standards Association, Electric Service League of Ontario, American Institute of Electrical Engineers, Canadian Electrical Manufacturers' Association and the Canadian Electrical Dealers' Association, as well as continued close contact with the Ontario Municipal Electric Association.

On the subject of electrical service, Mr. Washburn pointed out that utilities were now faced with the dual responsibility of supplying increased loads each year, and, at the same time, designing facilities to the closer tolerances required in the operation of new types of appliances and industrial equipment.

"Now, more than ever before," he said, "reliability of service is extremely important. Interruptions to service are really 'out of date,' and this must be kept in mind so that our facilities may be designed to cope with breakdowns."

Among the technical considerations of prime importance in the interest of quality service were: the installation of sufficient substations along with adequate transformer and feeder capacity; alternate supplies of transmission voltage to substations, and the design of feeders permitting the transfer of load from one substation to another.

"We have begun to accept the idea that the present upward trend

CHARLES S. PHELPS, Sarnia



DOUGLAS SEATH, Ingersoll



in the use of electricity is normal rather than abnormal as it was considered a few years ago," Mr. Washburn said. "Keeping this in mind, the design of all our installations should include features which facilitate expansion when necessary." Safety and appearance were other design features, which delegates were urged to consider.

Underground Installations

"The feasibility of more underground installations must be given further study at different load densities," the speaker continued. He said that much would have been accomplished when these could be designed within economic limits. A great deal of credit should go to those municipalities which had, and were experimenting with low-cost underground installations in residential areas. He predicted that "soon there will be enough experience gained so that reasonable guides for this type of underground construction can be produced."

Mr. Washburn expressed his pleasure, on behalf of the A.M.E.U., at the appointment of D. P. Cliff as an Ontario Hydro Commissioner. He said that it was gratifying to know that Mr. Cliff would continue as Secretary - Treasurer of the O.M.E.A. He expressed confidence that Ontario Hydro Chairman James S. Duncan and Second Vice-Chairman, the Hon. Ray Connell, would support the association in the same vigorous manner as had their predecessors. He thanked Hydro's General Manager, A. W. Manby, for the assistance the Commission had rendered during the year.

"It would be very difficult for us to do all the work ourselves," he said, "and we certainly appreciate the assistance of about 34 experts from Ontario Hydro who act on our various committees." Gordon Fuller, President, O.M.E.A., W. Ross Strike, Hydro's First Vice-Chairman, and Commissioner Lt.-Col. A. A. Kennedy were also praised for their co-operation and friendship.

Engineering Report

Following the president's address, reports were presented by the section chairmen, sub-committee chairmen and by the A.M.E.U. regional presidents. The report of the Engineering Section, presented by its Chairman, J. A. Williamson, Niagara Falls, dealt with many subjects of vital concern to utility operation. Mr. Williamson summarized the report later before the joint meeting with the O.M.E.A., laying particular emphasis on those sections of interest to the "Guide To Municipal Standard Construction." He explained that with the reorganization of the A.M.E.U. in February, 1956, the Engineering Section had become responsible for the material incorporated in the "Guide."

In his report, Mr. Williamson also pointed out that, within the Engineering Section, there were nine committees and 28 sub-committees, many of which were engaged in work projects that would result in revision or additions to the "Guide." In spite of interruptions occasioned by the reorganization, work was sufficiently advanced in some areas

Continued on page 18



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MEMBERS of the 1957 A.M.E.U. executive: seated, left to right — J. A. Williamson, Niagara Falls; G. R. Davis, Kingston, President; E. A. Washburn, Stratford, Past President; W. R. Mathieson, Toronto, standing, left to right — W. G. Lane, Collingwood; A. G. Stacey, Guelph; H. W. Little, Brockville; Harry Hyde, Toronto; J. W. Hammond, Hamilton; N. H. MacKinnon, Sudbury; W. R. Pfaff, St. Catharines; H. E. Brownhill, Stamford Township; E. A. Vigars, Port Arthur; D. N. Seath, Ingersoll, and W. H. Powell, Peterborough.

so that progress could be reported, while other projects had not yet reached the stage where results could be tabulated.

The Metering Committee, under the chairmanship of H. A. Howard, was reported to be making progress in its efforts to have all technical activities in the metering field incorporated within the A.M.E.U. Several independent organizations were presently active, and while they were said to be doing excellent work it was felt that it was in the interest of all Hydro municipalities to have their technical efforts in this field under one organization, fully co-ordinated and carried out on an economic basis. The committee believed that the inclusion of the metering organization within the A.M.E.U. would logically lead to a metering section in the "Guide."

The investigations being undertaken into load growth by the System Planning Committee, with Harry Hyde, Toronto, as Chairman, were described as likely to have a "tremendous influence on all phases of electrical utility design, operation and management in the years to come." As a result of the investigations of this committee a resolution, sponsored jointly with the O.M.E.A., was passed, requesting Ontario Hydro to allocate $150,000 for the purchase of the necessary equipment to permit a large-scale study of domestic load growth.

The resolution, as outlined by Bert Merson, Chairman, Toronto Hydro and Mr. Hyde, recommended that "studies be conducted and samplings made in various municipalities by measuring domestic loads from time to time and correlating the measured loads with causes in the changes of a customer's load characteristics." It suggested that such information would be most useful in system planning, rate studies, justification of different rates for different classes of service, and as an aid to management in general. The municipalities, where studies were to be made, would be requested to absorb the operating costs incurred by their systems.

The sampling method recommended would require the purchase of some 250 meters over a period of two or three years which, together with auxiliary equipment, would cost approximately $150,000. It was suggested that an administration committee composed of representatives of the O.M.E.A., A.M.E.U. and Ontario Hydro be appointed to advise on the expenditure of the funds. Preliminary studies conducted by the System Planning Committee had indicated that the steep incline of the "S" growth pattern would continue in the near future, and that, of all classes of electrical service, domestic and farm growth would be greatest.

The Specifications and Standards Committee, headed by Mr. Williamson himself, was added to the list of committees during the year, and to date its work had been exclusively in connection with the C.S.A. Specifications C2, covering single-phase distribution transformers, which was presently under revision. Consultations with the C.S.A. and the C.E.A. were reported to have been most productive.



J. A. WILLIAMSON, Niagara Falls



J. A. TORRANCE, Etobicoke Township



J. E. TECKOE, JR., Windsor

Under the direction of C. S. Phelps, Sarnia, the Overhead Committee had set up eight sub-committees covering various sections of the overhead construction field. These included a Library Committee, whose function it would be to gather pertinent technical data in the form of publications, etc., which would be made available to all municipalities. Other matters handled by the Overhead Committee during the year included consultation with the C.S.A. with regard to the development of standards for service masts and revision of the present C.S.A. standards concerning "power lines crossing railroad tracks."

The Communications Committee, headed by S. G. Murchie, Brantford Township, dealt with utility communications, and was reported to be working actively in the field of truck-to-truck and truck-to-station radio. The committee worked closely with the Federal Department of Transport during the year with regard to the allotment of wave lengths to utilities, and assisted with interference problems encountered in the operation of such installations. The field of internal utility communications would also be explored by this committee.

Committee Reports

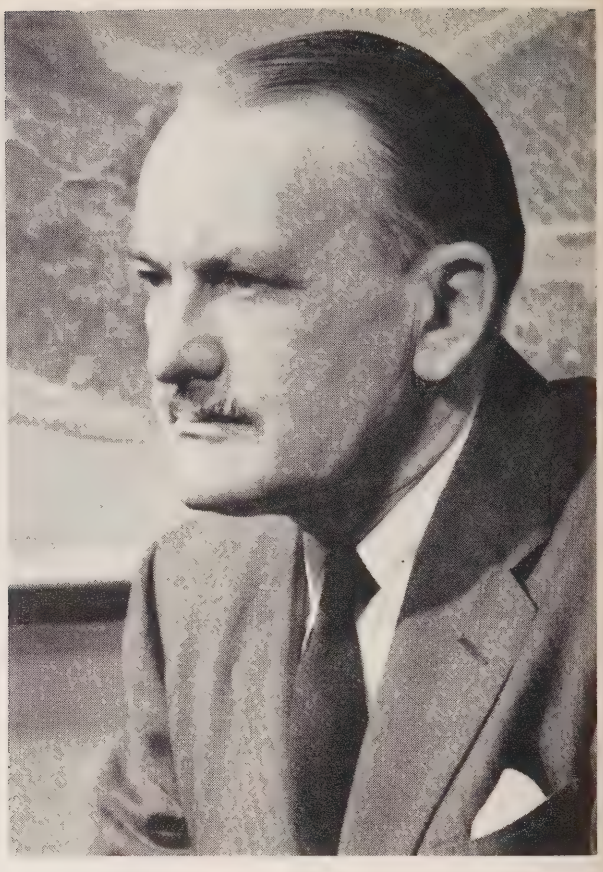
Mr. Williamson's report also described the organization and function of the Street Lighting Committee, W. H. Powell, Peterborough, Chairman; the Sub-Station Committee, John Torrance, Etobicoke, Chairman; and the Utilization Equipment Committee, of which N. A. Grandfield, Brantford, was Chairman. The latter, he said, was carrying out investigations pertaining to regulations regarding permissible motor ratings at various voltages, particularly small, single-phase types. This committee was also studying the effects on the distribution system of some of the higher wattage domestic appliances such as 7kw-range elements and 8kw-clothes driers.

In conclusion Mr. Williamson assured the delegates that there was a high degree of activity throughout the Engineering Section. He said "the organization is not just a paper organization, it is a working organization, and results in considerable volume will be forthcoming in the near future."

He congratulated the utility members for their efforts, and extended his congratulations to include the O.M.E.A. for supporting their staffs in this work. "It is true," he said, "that the committee members contribute to the knowledge and information of the entire membership, but it is also true that in the process of making such contributions, they receive far more than they contribute. Participation in our committees and sub-committees is equivalent to attending the finest schools of utility engineering and management. This is one of those situations where the Biblical injunction 'to cast thy bread upon the waters and it will be returned an hundred-fold,' is not only true, but is very simply demonstrated."

by Don Wright.

General Manager A. W. Manby tells delegates at O. M. E. A.- A. M. E. U. joint meeting of Hydro's plans for the present and the future



A. W. MANBY General Manager Ontario Hydro

HYDRO MEETS ITS CHALLENGES

- Long-range planning and serious consideration of future sources of energy . . .
- Construction of new facilities to meet growing demands for electricity . . .
- The role of thermal power in meeting future requirements . . .
- The challenge of nuclear-electric power . . .
- Ontario Hydro's introduction of electronic data processing . . .
- The problem of trained personnel, particularly professional engineers . . .
- Refunds to cost-contract municipalities totalling $3,855,519 . . .

THESE were highlights of a comprehensive report to delegates on Ontario Hydro operations during 1956 presented by General Manager A. W. Manby at this year's O.M.E.A.-A.M.E.U. Convention.

While the load growth in 1956 did not match the phenomenal increase of 14 per cent in 1955, it was, nevertheless, substantial: 6.6 per cent in the Southern Ontario System, 7.4 per cent in the Northeastern Division, and 8.2 per cent in the Northwestern Division.

During 1956, the total output of all resources amounted to 29.5 billion kilowatthours, representing an increase of 11 per cent over the previous year. Eighty-five per cent of this energy was generated by Hydro's own stations. Total sales of secondary energy amounted to 3.7 billion kilowatthours, and the disposal of a large part of this secondary energy in the export market not only benefited Hydro but, at the same time, provided invaluable assistance to neighboring systems.

"The fact that we were able to come to the assistance of the Niagara Mohawk System when it suffered the loss of its Schoellkopf plant, emphasizes once more the advantages of interconnection with neighboring systems. With this in mind, and with a view to making

the most efficient use of our combined resources, such an interconnection was made with the system of The Manitoba Hydro-Electric Board last October."

Referring to the report of the Royal Commission on Canada's Economic Prospects (the Gordon Commission), the speaker said that certain estimates in this report had indicated that, by 1980, Ontario Hydro may be faced with power demands five times what they are today.

Long-range Planning

"This stresses the need for long-range planning and serious consideration of future sources of energy. The latter topic is receiving increasing attention throughout the world."

While Hydro's planning engineers must necessarily devote a considerable amount of time to long-range planning, they must also plan for the immediate future, while remaining flexible enough in their thinking to revise their plans as required to meet changing conditions. This had been a difficult task over the past 10 years, when Hydro had been engaged in a major construction program that had increased its resources by 2.6 million kilowatts to well over two-and-one-quarter times what they were in 1945.

During 1956, the Manitou Falls Generating Station in the Northwestern Division had been the only major addition to Hydro's resources, and Mr. Manby felt that the addition of this station, with a capacity of some 54,000 kilowatts, would deserve more than passing comment were it not dwarfed by the fact that the average increase in Hydro's resources over the past five years had been more than 322,000 kilowatts per year. Even that tremendous achievement had left the Commission with little, if any, of the reasonable margin of reserve enjoyed at the end of 1954.

"Each year that passes," said Mr. Manby, "provides further evidence that the creation of power reserves is a long, slow pull — the dissipation of them often a headlong rush."

The speaker described 1956 as a "plateau year," in respect to increased resources, "a sort of breathing space between two stiff climbs." The first climb included the full development of the Ottawa River and the redevelopment of the Niagara; the creation of substantial generating resources on the Aguasabon, Nipigon and Mississagi Rivers, and the building of the two large thermal-electric stations in Toronto and Windsor. The climb in prospect (and already well begun) included the addition of four units and the pumped-storage scheme at the Sir Adam Beck-Niagara G.S. No. 2; the St. Lawrence Power Project, further developments in the northwest on the Nipigon, Winnipeg, English and Kaministikwia Rivers, and the increase of the Richard L. Hearn thermal-electric station to three times its present size.

Associated Facilities

Discussing expansion of associated facilities, Mr. Manby reported increases in capacity at a number of transformer stations, the installation of new transformer stations at Aylmer and Ottawa, and the completion of the Cherrywood Switching Station (the second station of this type in the Metropolitan Toronto area), which would eventually serve as one of the Commission's switching points for power supplied by the St. Lawrence development.

Coupled with the increase in transformer station capacity was an increase in transmission facilities — from 16,115 circuit miles to 16,489 circuit miles. This had included the net addition of 45 circuit miles

(Continued on page 22)

A graphic illustration of the organization of a typical Hydro Regional Office was presented in poster form at the O.M.E.A.-A.M.E.U. Convention. One of the points illustrated was the close connection between the Consumer Service Engineer and municipal officials, a matter of vital concern to, from left, A. T. Smith, Chairman, North Bay Hydro-Electric Commission; Harold Prescott, Mayor of Capreol and Chairman of the Capreol Hydro-Electric Commission; Bruce McCubbin, Commissioner, North Bay Hydro-Electric Commission and A. B. Hayman, Consumer Service Engineer, Hydro's Northeastern Region.



Convention Caricatures



EBY RUSH
Waterloo



J. R. WADE
Ancaster Twp.



E. D. WEAVER
Goderich

of 230,000-volt transmission line and 225 circuit miles of 115,000-volt line. A large part of this latter increase had been in the Northern Ontario Properties to meet new mining and industrial loads.

By the end of the present year, Mr. Manby stated, construction would be sufficiently advanced at Whitedog Falls, on the Winnipeg River, to permit the operation of all three units in early 1958. Also, during next year, Hydro would have available an additional unit at each of two stations on the Nipigon (Cameron Falls and Alexander), the fifth unit at Manitou Falls, and three units at Caribou Falls on the English River. Construction would start this year on a 43,500-kilowatt single-unit, remote-controlled station at Silver Falls on the Kaministikwia River.

"It has for some time been increasingly apparent, that the development of additional hydro-electric resources alone would be insufficient to meet the rapid increase in demands for electric power."

Thermal Power

In order to help meet this challenge, during the next four years there would be a continuing program of construction at the Richard L. Hearn plant on the Toronto waterfront. Foundation work was already well-advanced for the first of four 200,000-kilowatt steam turbo-generator units, which would raise the ultimate installed capacity of this station to 1,200,000 kilowatts. Its contribution would then be more than that of all the Commission's generating stations some 15 years ago, the speaker pointed out.

This development was only the beginning of a program that was, in some respects, a complete re-orientation of Ontario Hydro policy.

In view of the fact that the Commission found itself "close to the end of hydraulic resources which could be developed economically," Hydro must turn with increasing interest to thermal-electric generation, wherever the concentration of load might dictate. In the next quarter-century that could be, conceivably, anywhere from the Ottawa Valley to the border of Manitoba, the speaker continued. The precise location of the stations and their capacities would be determined by a number of factors, such as load concentration, cooling water supply and fuel handling. In order to ensure the most economical and dependable supply of fuel in keeping with the organization's requirements, Hydro was making a comprehensive study of the whole fuel supply problem.

For both fuel handling and cooling water, the natural advantages of shoreline sites on the Great Lakes system were apparent. Such a site had been recently acquired at Fort William for the future construction of a thermal-electric station, and other sites would be acquired in due course, as conditions warranted.

Nuclear-Electric Stations

"Meanwhile, we are continuing to pursue the intensive study of the feasibility and economy of the development of power from nuclear sources," said Mr. Manby. "In 1956, a start was made on the construction of NPD, the 20,000-kilowatt nuclear demonstration plant located near Des Joachims Generating Station, on the Ottawa River. This undertaking is only the initial step in the exploration of the extent to which future power needs can be met from nuclear fission."

The Commission's interest, the speaker inferred, in nuclear-electric power was double-edged — for the long term, in the development of power from nuclear sources; for the immediate future, in the demands for power in the mining of nuclear fuel. The demands of Hydro's uranium mining customers in the Blind River area were expected to be over 100,000 kilowatts by the end of 1958.

Hydro was conducting feasibility

studies for a large-scale power reactor in collaboration with Atomic Energy of Canada Limited, Mr. Manby revealed. Results thus far had been encouraging, but there were still many complex and difficult problems to be solved before nuclear power plants became competitive.

"Nevertheless," said the speaker, "I am confident that our engineers and scientists will find a satisfactory solution to them. Staff is now being trained so that we shall be in a position not only to operate NPD, when it is in service, but also to take full advantage of new developments in the art."

Hydro engineers were currently designing the conventional part of NPD. These engineers would be the nucleus of an expanding thermal engineering group, which would, in the years to come, be capable of designing and constructing the Commission's thermal-electric stations — both conventional and nuclear.

Electronic Data Processing

Hydro's decision to introduce a UNIVAC II computer, Mr. Manby stated, had made it the first electrical utility in Canada to make use of such equipment. It was expected that the gradual introduction of an electronic data processing system over the next few years would enable the staff to take over the growing responsibilities of increasing business without a proportionate increase in the number of employees. Every inducement was being offered Hydro employees to take advantage of the new labor-saving equipment to develop their skills and improve their status.

Automation could not, however, provide the answer to the much-publicized shortage of engineering and technical manpower, as automation would bring in its train an increasing demand for engineers and technicians.

Extensive study was being given to the most effective use of the Commission's engineers. Through an Engineering Effectiveness Program Hydro was seeking to relieve engineers of non-engineering duties and free them for more purely professional work.

Frequency Standardization

Reporting on the progress of the Frequency Standardization program, Hydro's General Manager said that operations in the Chatham-St. Thomas and Hamilton areas were now complete, and operations in the Niagara Region and Toronto area were well-advanced. Equipment of some 75 per cent of the customers in the Niagara Division had been altered, and a considerably larger proportion of the estimated industrial load had been changed over. It was anticipated that the program in the Southern Ontario System would be finished in the summer of 1959. The total cost to the end of 1956 had been $281,633,589, including inventories of $15,619,144.

Domestic customers were using "more and more" frequency-sensitive equipment. The originally-estimated average per customer was 2.7, whereas experience in 1956 indicated an average of 4.8.

Plans were now going forward to extend the benefits of frequency standardization to municipal customers in the Northeastern Division. A necessary part of the standardization program was the changeover of power supply facilities. Two units at Sir Adam Beck-Niagara Generating Station No. 1 had been converted last year, and arrangements had been made for the standardization of equipment used by Hydro's Quebec suppliers to supply power under the long-term 25-cycle contracts.



GEORGE HOWLETT
Petrolia

Power Revenue

During 1956, the Commission's revenues had continued buoyant, Mr. Manby reported. Those of the Southern Ontario System, serving the large majority of the municipalities represented at the convention, rose from $140.6 million in 1955 to $158.5 in 1956. The success of the year's operations had been due, to a considerable extent, to the unusually good water conditions prevailing during the year. As a result, the consumption of fuel had been substantially lower than expected. Revenue from the sale of secondary power exported to the United States had been almost double that of 1955, the increase being divided about equally between 25 and 60-cycle power.

"In view of the unusually favorable operating results," he continued, "the Commission decided it would be prudent to make a special appropriation of $2.00 per kilowatt for transfer to the Reserve for Stabilization of Rates and Contingencies. This appropriation has been offset to some extent in the Eastern and Georgian Bay Divisions by the closing out of reserves held specifically for the benefit of these two divisions."

These appropriations for Reserves, the General Manager pointed out, were in keeping with the recommendation of Clarkson Gordon Company, contained in their report on the Reserves of the Southern Ontario System submitted in 1951. Bearing in mind that the total assets of all systems were now slightly over two billion dollars, and that the need for reserves was correspondingly increased, it was only sound business practice to apply a greater percentage of earnings to reserve accounts in a year when operating results had been particularly favorable. By so doing, it was anticipated violent fluctuations

(Continued on page 35)



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"REFLECTING" general satisfaction with the convention program, W. Ray Pfaff, St. Catharines (left), and E. A. Washburn, retiring President, discuss 1957 A.M.E.U. plans.



△

THREE eastern Ontario delegates evidently had found an engrossing topic. With W. C. McLaren, Perth (left), serving as referee, Mayor G. W. Comba, Carleton Place, "laid down the law" to H. D. Duby, Perth.

Convention

O.M.E.A. - A.M.E.U. 1957



THESE gentlemen: left to right — M. W. Rogers, Carleton Place; L. W. Smith, Tillsonburg; Stewart Jones, Hamilton; S. C. Webster, Tillsonburg, and John Dawson, Dunnville, took a "lofty view of things" from a stairway leading to the convention floor.

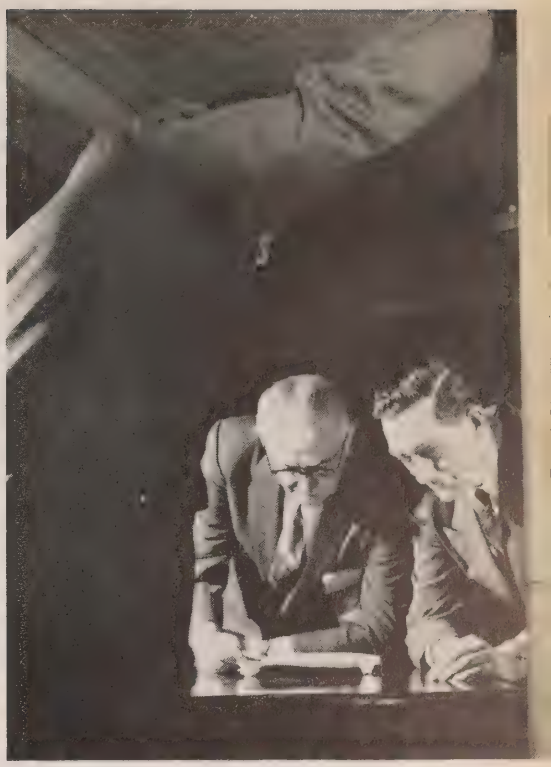
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XAMINING one of Ontario Hydro's electrical safety demonstration kits are: left right — John MacLellan, Director of Accident Prevention; Roy Beith, Manager, ectrical Employers Association; Ronald Harrison, Manager, Scarborough ownship P.U.C. and T. E. Dietrich, Manager, Hydro's Services Department.

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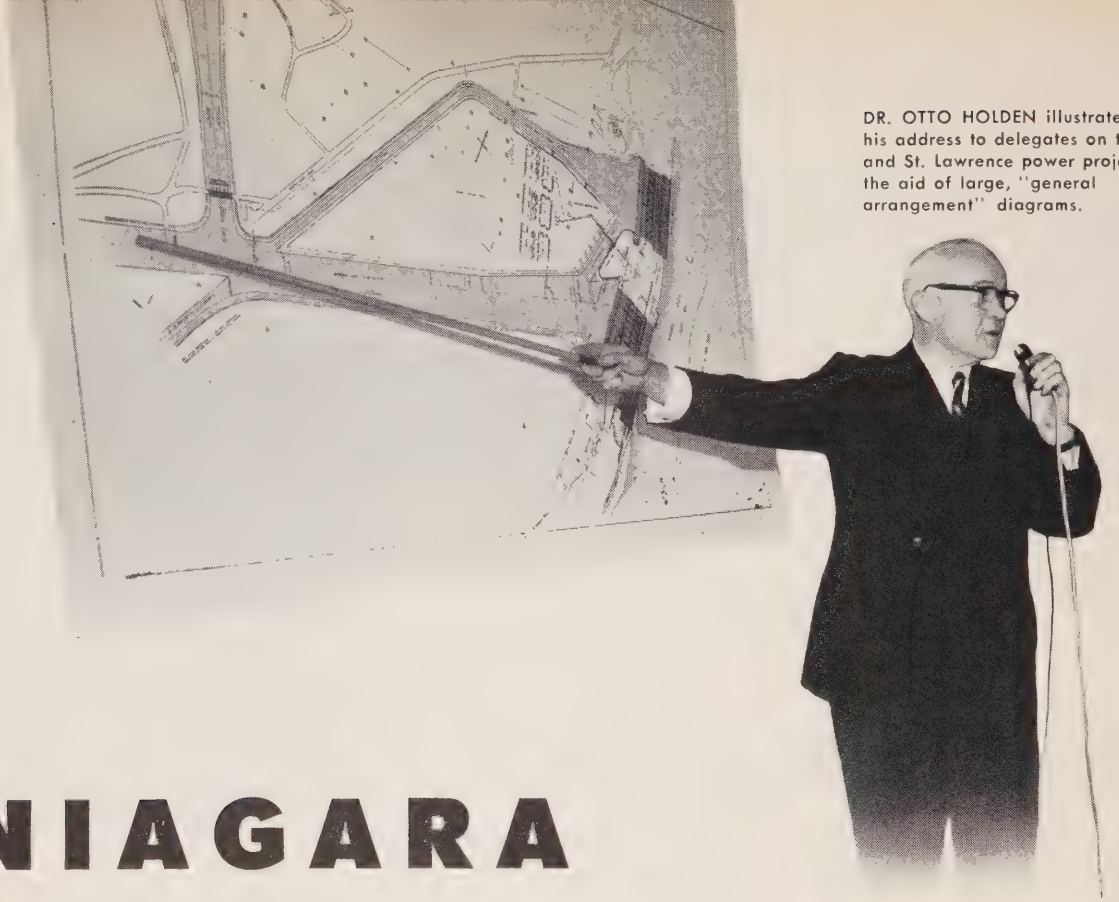
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CHAIRMAN Stanley Lewis (left) and General Manager F. G. York, Ottawa Hydro, were scrutinizing the convention program in detail.

THE exhibit hall, four representatives of municipalities in the Toronto area: left to right – R. H. Starr, Toronto Township; John Torrance, Etobicoke Township; Charles S. Pearce, adford, and R. H. Philip, Trafalgar Township, were inspecting a group of large wall photo- aphs, which depicted various phases of Ontario Hydro's province-wide expansion program.

7





DR. OTTO HOLDEN illustrated his address to delegates on the Niagara and St. Lawrence power projects with the aid of large, "general arrangement" diagrams.

NIAGARA AND ST. LAWRENCE

DELEGATES at the joint O.M.E.A.-A.M.E.U. Convention this year were told of a year of record progress in the construction of two of Hydro's largest new power projects — the Robert H. Saunders-St. Lawrence Generating Station and the Sir Adam Beck-Niagara Generating Station No. 2.

Dr. Otto Holden, Hydro's Chief Engineer, outlined the construction advances in a detailed report covering every phase of these two large power sources in the Commission's expanding network.

Introducing his report, Dr. Holden explained that the St. Lawrence and the Sir Adam Beck projects will, when completed, provide two of the three major power sources designed to meet the anticipated load growth in the interconnected Southern Ontario System and Northeastern Division. Planned additions to the Richard L. Hearn thermal-electric station in Toronto will also help to meet the increased load.

Dealing first with the Commission's activities at Niagara, Dr. Holden reported that construction is well advanced on the extension of the Sir Adam Beck No. 2 powerhouse, which will add four units to the twelve now in service. Substructures for these four units are well underway, and steel penstocks are under construction. Dr. Holden expressed confidence that Unit 13 would be placed in service, as scheduled, by November 1, 1957. Unit 14 was expected to be in service by January 1, 1958, with the remaining two units to be ready by the summer of the same year, he stated.

Tests of Units 10, 11 and 12 indicated turbine efficiencies well above the 91 per cent guaranteed by the manufacturers. Of particular significance, from an operating point of view, was the fact that, for loads ranging from 51,000 kilowatts to 81,700 kilowatts, turbine efficiency was 90 per cent or more.

Pumping-Generating Station

Dr. Holden also dealt with another phase of the same development, the associated six-unit, pump-

Chief Engineer reports year of progress on Hydro's two major power projects

ing-generating station. This unique project would have an installed capacity of 170,000 kilowatts, and would contribute significantly to system resources during peak demand periods, he said.

"This plant," Dr. Holden explained, "will enable us to use the water made available to us through the 1950 Niagara Diversion Treaty between Canada and the United States to the greatest advantage; that is, the output of the Niagara plants will more closely coincide with the load demand." Through this treaty, the two neighboring governments effected a revised schedule of permissible diversions. The schedule stated that the flow over the falls could be reduced to not less than 100,000 cubic feet a second during the daylight hours of the tourist season, and at other times to not less than 50,000 cubic feet a second.

Dr. Holden then turned to the subject of the remedial works program being carried out jointly by Canada and the U.S. to regulate flow and preserve the beauty of the falls. Two channels dredged at the flanks of the falls have been completed, he said, and work was continuing on the 1,550-foot control dam located at the head of the Upper Cascades on the Canadian shore.

Nine of the 13 sluice gates have been completed, five of them during the past year. With the machinery for operation already in service, the dam and the installation of the remaining four sluices would be completed this year, the speaker stated.

Dr. Holden said the completion of the main generating station and the pumping - generating station would increase the installed capacity of the Sir Adam Beck No. 2 plant from its present 900,000 kilowatts to 1,370,000 kilowatts. Ontario would then have developed the maximum potential of the Niagara River in accordance with, and provided for under the 1950 Treaty.

St. Lawrence Power

In his "progress report" on the St. Lawrence Power Project, Dr. Holden announced that all major structures and channel improvements had been designed, except for the tailrace channel, which was under study at the present time. Some 55 major construction contracts, as well as many smaller ones, have been awarded, and only one major contract — the tailrace channel — still has to be placed.

Major generating equipment for both powerhouses, the gates and gantry cranes for the Long Sault Dam and Iroquois Dam have been ordered. Some of this equipment already has been installed. Using a large scale diagram of the development, Dr. Holden traced progress to date on all aspects of the St. Lawrence Power Project.

"Progress on actual construction operations has been satisfactory and generally in accordance with the schedule." Dr. Holden said. "On a project of this magnitude and character, contingencies of various kinds are possible; however, it is expected that the scheduled date for the raising of the water level in the summer of 1958 will be attained, and power will be made available shortly thereafter."

Continuing, he told delegates that the channel improvement program was well under way at several locations with both dry excavation and dredging operations. Work would be started in the spring on three contracts recently let for this type of work.

The Iroquois dam, which would control the outflow from Lake Ontario, was being constructed in two stages. The first of these has been completed, and, with the river diverted through its sluices, coffer-

(Continued on page 28)

EVIDENCE of progress is presented by this aerial view of construction at Hydro's Robert H. Saunders — St. Lawrence Generating Station (centre), where work is proceeding on the installation of imbedded parts for the first four units of the 820,000-kilowatt development.



dams for the second stage have been finished, and rock excavation started. This structure would be completed early in 1958.

At Long Sault dam, which presents the most intricate construction problem, the first of three stages has been completed. Operations to divert the river through the sluices of the first stage, and to permit second stage excavation are under way. The Long Sault dam was scheduled for completion in July, 1958, to permit the raising of the forebay.

Associated Projects

Dr. Holden said that, to date, 470,000 cubic yards of concrete had been placed in the Canadian powerhouse. The imbedded parts of the first four turbines had been set, and the assembly of a 300-ton gantry crane to be used in placing the units will start in April of this year.

An interesting associated project was the construction of the earth fill dykes, extending upstream from the shore ends of both powerhouses, to contain the headpond. Dr. Holden announced that excellent progress on these had been made during the late summer and fall of 1956. Native soil or "glacial till" material was being used for this purpose and, when compacted in dykes, it had a unit weight approaching the density of concrete.

Work on the relocation of 40 miles of Canadian National Railway double track between Montreal and Toronto was proceeding with contracts for ballasting and track-laying let in the spring of 1956. This work was now 80 per cent complete. Contracts for the construction of five new stations at Iroquois, Morrisburg, Ingleside, Long Sault and Cornwall were let in the latter part of 1956, and the work was scheduled to be completed this summer.

Of some 35 miles of Highway No. 2 being relocated, 25 miles would be completed early this summer. For the remaining 10 miles, advantage would be taken of the present CNR roadbed to permit a considerable saving in the cost. This portion could not be constructed until the railway was diverted.

Rehabilitation

Turning to the rehabilitation program on the St. Lawrence, Dr. Holden said, "One of the most complex problems in connection with the St. Lawrence Power Project is the acquiring of the many properties affected, and providing new housing and good living conditions for the 6,500 people now located in

(Continued on page 42)

LEO MULLEN, Ontario Hydro Information Officer (holding pointer), describes features of the Commission's St. Lawrence Power Project model, which was on display during the convention.



STREET LIGHTING PROPOSALS

HYDRO RATE STUDY ENGINEER OUTLINES SUGGESTED RATE STRUCTURE AND BILLING METHOD

A PROPOSAL to replace the present rate structure for municipal street lighting with a new billing method incorporating power, capital charges on equipment and maintenance costs was outlined at the final session of this year's O.M.E.A.-A.M.E.U. annual convention by A. W. Murdock, Ontario Hydro's Rate Study Engineer.

The recommendation is the result of a special study of the question undertaken by the Rates Committee of the A.M.E.U. It was endorsed by the executive of the organization, and has since been approved by the Commission.

J. E. Teckoe, General Manager of the Windsor Utilities Commission and Chairman of the A.M.E.U. Rates Committee in introducing Mr. Murdock said the repeal of clauses (a), (b) and (c) of Section 112, Subsection 1 of the Power Commission Act, had necessitated the development of a rate and method of billing, which would bring the street lighting revenue more closely in line with actual cost.

In presenting the proposal, Mr. Murdock explained that in effect the old system of billing the municipalities for street lighting embodied an interim charge with an annual adjustment, whereby any surplus was refunded to the municipality. Under the new method year-end adjustments for street lighting would not be required.

He said that the proposal placed street lighting in the same category as other customers of the utility, and considered that the equipment used exclusively for street lighting purposes was equivalent to any other customer's wiring and equipment.

Mr. Murdock reminded the delegates that all customers other than street lighting provide their own utilization facilities, whereas with street lighting these facilities were provided and maintained by the utility. Hence the utility, in addition to a charge for power, must recover capital charges and the cost of operating and maintaining the street lighting equipment.

He emphasized the simplicity of the new method in respect to both existing and new street lighting installations, and assured the audience that the proposal would provide a much closer representation of cost than had prevailed in past years under the old method.

The proposal incorporated the following items:

1. A charge for power delivered to the street lighting equipment;

2. Capital charges on the equipment used exclusively for street lighting consisting of (a) interest and sinking fund on outstanding capital and (b) depreciation;

3. The actual cost incurred in operating and maintaining the street lighting equipment.



A. W. MURDOCK, Ontario Hydro

It was pointed out that the power portion of the street lighting charge could be derived from a very simple rate structure, which applied to any municipality would produce results consistent with the cost of power at the substation. A modification of the commercial structure determined on an annual rather than a monthly basis was finally adopted as follows:

A service charge of $6.00 per kilowatt per annum;

Plus 1,200 hours use per annum at the 1st Commercial rate;

Plus 2,800 hours use per annum at 5c;

A discount of 10 per cent.

(Continued on page 43

G. R. DAVIS HEADS A.M.E.U.

O.M.E.A. RE-ELECTS

GORDON H. Fuller, Windsor, was unanimously re-elected to his second successive one-year term as President of the Ontario Municipal Electric Association, at the 48th annual convention of the O.M.E.A. this year.

James S. Duncan, Chairman of Ontario Hydro, was named Honorary President of the Association, succeeding Dr. Richard L. Hearn, who retired last fall as Hydro Chairman.

Honorary Vice-Presidents of the O.M.E.A. are: K. A. Christie, Q.C., Toronto; C. J. Halliday, Chesley; H. O. Hawke, Galt; G. F. Hutcheson, Huntsville, and M. J. Elliott, Bowmanville.

The convention again named D. P. Cliff, Ontario Hydro Commissioner, as Secretary-Treasurer.

District Vice-Presidents named: District No. 1, J. G. Baldwin, Lindsay; District No. 2, Lt.-Col. A. A. Kennedy, Owen Sound; District No. 3, George O'Neill, Nipigon; District No. 4, Bert Merson, Toronto; District No. 5, W. B. Elliott, St. Catharines; District No. 6, G. H. Glover, St. Marys; District No. 7, H. R. Henderson, Woodstock; District No. 8, J. T. Barnes, Sarnia.

Elected District Directors were: District No. 1, Dr. R. A. Patterson, Kemptville, and H. S. Graham, Newcastle; District No. 2, A. T. Smith, North Bay, and John M. Low, Uxbridge; District No. 3, John L. Skillen, Dryden, and C. C. Skinner, Schreiber; District No. 4, Dr. V. S. Wilson, Etobicoke, and Amos Waites, Mimico; District No. 5, C. R. Buss, Thorold, and Frank Kaupp, Merritton; District No. 6, H. M. Scheifele, Waterloo, and T. J. Moffat, Listowel; District No. 7, P. R. Locke, St. Thomas, and G. E. Brown, Aylmer; District No. 8, Roy Warwick, Blenheim, and Thomas Cada, Tecumseh.

A.M.E.U. Officers

G. R. Davis, P.Eng., General Manager of Kingston Public Utilities Commission, was elected President of the Association of Municipal Electrical Utilities at the annual convention. He succeeds E. A. Washburn, General Manager and Secretary, Public Utility Commission, Stratford.

J. A. Williamson, P.Eng., Manager of the Niagara Falls Hydro-Electric Commission, was elected Vice-President and the following were named Directors-at-Large: J. W. Hammond, R.I.A., General Manager and Secretary, Hydro-Electric Commission, Hamilton; W. R. Pfaff, General Manager, Public Utilities Commission, St. Catharines; Samuel Murchie, Manager and Secretary, Hydro-Electric Commission, Brantford Township.

District Directors are: Eastern — H. W. Little, P.Eng., Manager, Public Utilities Commission, Brockville; East Central — W. H. Powell, P.Eng., General Manager, Utilities Commission, Peterborough; Georgian Bay — W. G. Lane, Chief Engineer, Public Utilities Commission, Collingwood; Niagara — H. E. Brownhill, P.Eng., Manager and Secretary, Public Utilities Commission, Stamford Township; Northeastern—N. H. MacKinnon, P.Eng., Manager and Secretary, Hydro-Electric Commission, Sudbury; Northwestern—E. A. Vigars, P.Eng., Manager, Public Utilities Commission, Port Arthur; Toronto—Harry Hyde, P.Eng., Assistant Chief Engineer, Hydro-Electric System, Toronto; West Central — A. G. Stacey,



IN RECOGNITION of his contribution to the A.M.E.U., the retiring President, E. A. Washburn (right), was presented with an illuminated scroll and an engraved silver cigarette box. H. A. Howard, Immediate Past President, made the presentation on behalf of the association.

i. H. FULLER

P.Eng., Chief Engineer, Board of Light and Heat Commissioners, Guelph; and Western—D. M. Seath, Manager and Secretary, Public Utilities Commission, Ingersoll. W. R. Mathieson, Toronto, was re-appointed Secretary-Treasurer.

Known as "Cap" to a wide circle of engineering associates and personal friends, Mr. Davis, the new A.M.E.U. President, was born and received his early education at Smiths Falls. His father, the late Captain G. A. Davis, operated a steamboat, the "Victoria," on the Rideau Lakes for 40 years.

He graduated from Queen's University at Kingston with a degree in electrical engineering in 1927, and immediately joined the staff of Ontario Hydro, being named as a meter and relay engineer. In 1934, Mr. Davis became Supervising Engineer of Hydro's Operating Department with headquarters at Belleville. In 1937 he joined the staff of the Ottawa Hydro-Electric Commission as Superintendent of Substations and Engineer. He was named Assistant General Manager at Ottawa in 1949, and in 1951 became General Manager, succeeding S. W. Canniff. He resigned his position in the Capital City late in 1953 to become General Manager of Kingston P.U.C.

Actively identified with many engineering organizations, Mr. Davis is a member of the Engineering Institute of Canada, the American Institute of Electrical Engineers and the Association of Professional Engineers of Ontario. He has played a particularly prominent role in A.M.E.U. affairs for several years, having served as a Director on several occasions and last year as the Vice-President. ■



WINDING up a successful convention, O.M.E.A. President Gordon H. Fuller (right) presents the gavel to A.M.E.U. President-elect G. R. Davis (left), who modestly accepts the congratulations and best wishes of Mr. Washburn (now the Immediate Past President) for a successful year.

AMONG THE SPEAKERS



W. A. SUTHERLAND
Hamilton



J. H. PAGE
Renfrew



HON. RAY CONNELL
Second Vice-Chairman Ontario Hydro



BISHOP C. L. NELLIGAN
Windsor



D. P. CLIFF
O.M.E.A. Secretary-Treasurer

EVENTFUL YEAR

O.M.E.A. Membership Now Includes 301 Municipalities, Secretary-Treasurer Reports

ONTARIO Hydro's Golden Jubilee year, which marked 50 years of progress, was "one of the most eventful and inspirational" in Hydro history, D. P. Cliff, O.M.E.A. Secretary - Treasurer, and Ontario Hydro Commissioner, declared in presenting his report to O.M.E.A. delegates at their recent convention.

O.M.E.A. membership increased last year from 289 to 301, he said, and three new cost municipalities — Ajax, Sandwich East and Atikokan — which joined the Hydro family during the year, were now members of the association.

Financially, the association also maintained its strong position. Revenues were sufficient to meet all expenditures, leaving a surplus of $141.65 on the year's operations. The present schedule of membership fees seemed adequate to meet the needs of the association, Mr. Cliff said in reporting that total assets included Canadian Government bonds and Ontario Hydro debentures worth $10,500, as well as a total cash balance of $1,109.

Paying tribute to President Gordon H. Fuller, under whose guidance "the business of the association was efficiently and judiciously transacted," Mr. Cliff reported that four meetings of the Board of Directors; one meeting of the district presidents and secretaries, and one meeting of the executive committee were held during the year.

Magazine Commended

Dealing with the question of district meetings, the speaker pointed out that it was unnecessary to review these meetings as the proceedings had been fully reported in *Ontario Hydro News.*

"At this point, I would be remiss if I did not pay tribute to the editor and staff of *Hydro News* for the complete coverage given, not only for our annual but for district meetings as well.

"Let us not forget that the '*News*' was designed to strengthen the bonds of common interest among the members of our large Hydro family, and its success will be determined by the measure of our co-operation. I am sure the editor would welcome additional newsworthy items from the municipalities. Let us all help to keep it the great 'family journal' that it is," Mr. Cliff exhorted.

Disposal of Resolutions

Concurrently, said Mr. Cliff, while some resolutions passed by the O.M.E.A. at its last annual meeting were still under consideration, most had been dealt with favorably by the authorities concerned.

One resolution, reaffirming previous resolutions passed by the O.M.E.A., sought legislation to eliminate processing of municipal power accounts. The necessary enactment was approved by the Ontario Legislature last fall.

Ontario Hydro agreed to another resolution requesting that it give notice to the O.M.E.A. before taking further action on the equalization of wholesale power rates to the municipalities.

In response to two resolutions the Board of Directors appointed two committees—one to review methods of representation and voting with a view to greater equity within the association, and another to study standardization of job classification for municipal Hydro employees.

A resolution requesting that Ontario Hydro make available to local utilities long-life lamps and active promotional assistance had received attention. The lamps were being provided, but there had been no indication of promotional assistance.

Ontario Hydro did, however,

with the Electric Service League of Ontario, agree to stress in advertising the dangers of over-fusing branch circuits.

There had been no evidence that the Ontario Government intended to implement the request that it enact legislation, which would make it unlawful to attach anything to any property of a local utility without first obtaining the consent of the utility.

A resolution commending Ontario Hydro for making it possible for local commissioners to tour Head Office received a reply from the Commission stating that the tours would continue.

Another resolution indicated the O.M.E.A.'s desire to sponsor a 50th Anniversary celebration in Kitchener on May 14, 1956. The celebration was held and was successful.

Association Recognized

Mr. Cliff, who has been closely associated for 11 years with the O.M.E.A., said he considered it further recognition of the association when the Ontario Government appointed him last year to the Ontario Hydro Commission.

"I am quite confident that, in offering me the post, Premier Frost had in mind the further implementation of the policy proclaimed when Lt.-Col. Kennedy was appointed," he said. "At that time the Premier stated: 'We propose to give the Ontario Municipal Electric Association representation on the Commission. I think the enlargement of this Commission, and the recognition of the claims which have been advanced for many years by the Municipal Electric Association, is a step forward along the lines of broadening the Commission in a way which I think will be satisfactory, particularly in view of the very great extent to which this Commission influences the economic life of the province'."

With the concurrence of President Gordon Fuller, whom he commended for unfailing service to the O.M.E.A., Mr. Cliff accepted the office, being sworn in November 1, 1956, by the Lieutenant-Governor.

"It is with a profound spirit of humility and yet with every confidence that I look forward to this opportunity of further and greater service to our province-wide, publicly-owned hydro-electric enterprise of which you and I are so justly proud," Mr. Cliff said.

—by Oli Daum.



REGISTRATION DESK WAS A BUSY PLACE DURING THE EARLY STAGES OF THE CONVENTION.

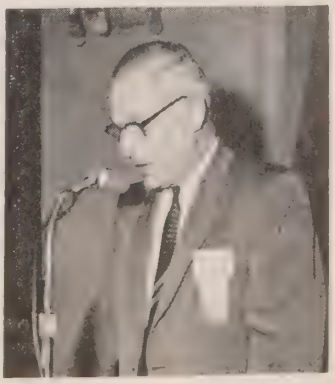
AMONG THE SPEAKERS



F. G. YORK
Ottawa



JOSEPH O. CONNELL
Kitchener



P. R. LOCKE
St. Thomas

GOLDEN JUBILEE FLASHBACK



LT.-COL. A. A. KENNEDY
Ontario Hydro Commissioner

Looking back at Ontario Hydro's Golden Jubilee year, Commissioner Lt.-Col. A. A. Kennedy told O.M.E.A.-A.M.E.U. delegates that the story it had brought to light of Hydro's early struggles would probably serve to inspire great achievements in the era ahead.

"I am sure that during the Jubilee celebrations all of us felt a new sense of pride in the Hydro spirit and tradition," he said, "and that our achievements of the last 50 years will inspire us as we head into an era that is bound to present us with formidable problems that will test our human and material resources."

Reviewing the occasions on which Hydro was honored during the year, Lt.-Col. Kennedy singled out three observances, which he termed symbolic of the demonstrations staged on behalf of the Hydro family.

One was a dinner and pageant in Kitchener on May 14, during which there was a presentation of historical highlights relating to Hydro's early days, and the other, a testimonial dinner given by the Ontario Government in Toronto to mark the achievements of Hydro on behalf of Ontario and its people. He also noted the unveiling, at which Ontario's Lieutenant - Governor, the Hon. Louis Breithaupt, officiated, of a memorial cairn at St. Jacobs in memory of E. W. B. Snider, one of the pioneers of the Hydro movement.

Col. Kennedy said that a program, supervised by the Golden Jubilee Committee, to publicize the Golden Jubilee Year, was highly successful.

Successful Program

The program included: Participation in at least one fair or exhibition in each region and in every major fair throughout the province; production of a 25-minute color film, "A Gift of Nature," which traces the 50-year history of the Commission, culminating in the Golden Jubilee celebrations. Released in December, 1956, it was rapidly booked for showing to clubs, educational groups and other associations during 1957. Other films were produced for CBC-TV, while scripts were prepared by Hydro's Information Division for radio.

Special magazines and other literature were published and considerable publicity, in both advertising and editorial fields, was gained in newspapers and trade journals.

Ontario Hydro staff at Head Office in Toronto and at the St. Lawrence Power Project accepted 256 speaking engagements, and also arranged tours of the St. Lawrence and Niagara projects, generating stations and transformer stations.

An Ontario Hydro house flag was developed, and Golden Jubilee banners were designed and distributed for display purposes.

A Jubilee Medallion was designed and used as the theme for all publicity during the year. It was used on Commission stationery, in complimentary advertising by independent organizations and in all Golden Jubilee decorations.

Solid replicas of the medallion, made of fibreboard 12 inches in diameter, were sold to municipalities and regions for use in offices, lobbies and elevators, etc. A miniature medallion in plastic was produced as a key chain for distribution to Commission employees, municipal utilities and to guests at major tours, functions and addresses.

While the success of most Jubilee activities could be measured almost immediately, the effect of one would be known only 50 years hence.

Permanent records of the Golden Jubilee year were to be encased in a hermetically sealed vault under the bust of Sir Adam Beck in the new Sir Adam Beck-Niagara Generating Station No. 2.

"When, according to instructions, this vault is opened 50 years hence, I am sure that those who will follow us will experience a genuine feeling of historical pride as they inspect these important records," Lt.-Col. Kennedy said.

In closing, he expressed gratitude and appreciation to all who contributed in any way to the success of Hydro's Golden Jubilee year.

—by Oli Daum.

HYDRO MEETS ITS CHALLENGES

(Continued from page 23)

in the cost of power would be avoided.

After making these reserve provisions, there would be a total refund of $3,725,446 to the municipal cost-contract customers in the Southern Ontario System, and $130,073 to those in the Northern Ontario Properties. These refunds would be going to 322 of the 332 such customers on the systems, and no cost-contract municipality would pay more than $46.53 per kilowatt. In 23 municipalities where costs exceeded this amount, they had been reduced to that level by the application of interest on the fund established by the municipalities in past years for maintaining a ceiling on the cost of power.

Municipal Operations

Mr. Manby said it was gratifying to know that there was every indication that the municipal utilities had also had a good operating year. Municipal utility business was growing rapidly, bringing with it problems of increasing number and complexity. During 1956, seven additional municipalities commenced taking power under municipal contracts, bringing the total number to 350. Four of these municipalities — Ajax, Atikokan, and the Townships of Sandwich East and Sandwich West — were previously supplied by the Commission, either as local systems or as part of Hydro's rural system. The remaining three municipalities — Bracebridge, Coniston and Thessalon — received power from the Commission for the first time in 1956.

"I cannot emphasize too strongly," the speaker said, "the role played by the O.M.E.A. and A.M.E.U. in meeting our common problems. The tremendous job being carried out by the directors and executives of these two organizations is well known to this audience."

Mr. Manby pointed out that the new municipal rate structures, the work of the Rates Committee of the A.M.E.U., had now been implemented in 40 municipalities, and were recognized as being fair and equitable. The committee had also made an intensive study of a new street-lighting rate structure. The Municipal Pension and Insurance Committee was to be highly commended for its contribution to this most important aspect of utility administration.

Costing of power was a matter of prime importance to the municipal utilities, and it was now proposed to increase the emphasis placed on energy consumption in Hydro's costing procedure. Effective with the first of this year, 50 per cent of the costs associated with the power supply element would be allocated on an energy basis, instead of 35 per cent, as heretofore. This element of cost, representing principally charges for generation, step-up transformation and purchased power, amounted in 1955 to approximately 57 per cent of the total cost of power to all municipalities in the Southern Ontario System. Half of this, allocated on an energy basis, would represent about 28.5 per cent of the total cost of power.

"I wish to express to you gentlemen," concluded Mr. Manby, "our appreciation of the co-operation you have given us in these undertakings throughout the year. I can assure you it has assisted us materially in discharging our responsibilities."

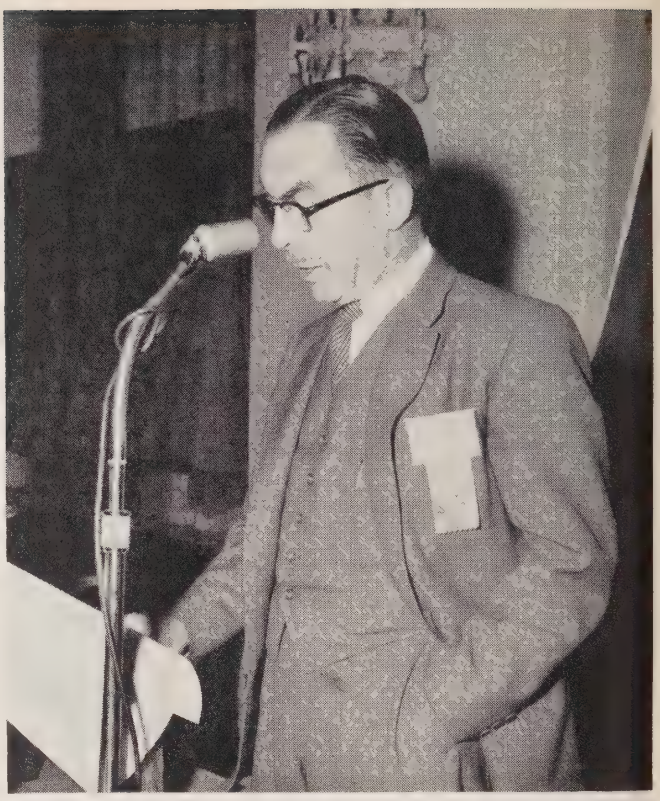
by Horace Brown



UNTIL 2006 A.D.

One of the highlights of the convention banquet was the presentation of a collection of souvenirs of Ontario Hydro's Golden Jubilee celebrations in 1956. The box will be taken to the Commission's Sir Adam Beck-Niagara Generating Station No. 2 where it will be placed in a concrete-enclosed vault at the base of a statue of Sir Adam Beck, Hydro's first Chairman. The vault will remain closed until the year 2006 A.D. when Ontario Hydro holds its centennial celebrations. Left to right, are: O.M.E.A. President Gordon H. Fuller, Windsor, who made the formal presentation; Hydro's first Vice-Chairman W. Ross Strike, Hydro Chairman James S. Duncan, who formally accepted, and E. A. Washburn, retiring A.M.E.U. President.

RED SEAL PROGRESS



W. J. WYLIE, Toronto

THE Electric Service League of Ontario made significant progress during 1956 in its campaign to make the public aware of the importance of adequate wiring, O.M.E.A.-A.M.E.U. delegates at the recent annual convention were told.

League President W. J. Wylie estimated that in approximately 80 per cent of the homes in Canada today the larger electrical appliances available could not be used satisfactorily, because electrical wiring was inadequate. The dissatisfied electrical customer, he said, was more likely to consider a change to some other type of fuel for household uses.

The League must, therefore, with financial support and active co-operation from the municipal utilities, electrical contractors, appliance dealers and manufacturers, continue its campaign of demonstrating to every electrical customer the satisfaction and safety inherent in using appliances that were connected to proper wiring. Each component of the electrical industry would benefit from this program.

In Ontario last year, Mr. Wylie said, 9,411 "Red Seal" certifications — 611 less than the previous year — were awarded. But the decrease, he said, might be due to a slowing down in house building during the latter part of the year. It was gratifying to note, on the other hand, that a higher percentage of the lower-cost homes — those in the $12,000 to $15,000 range — were certified as houses wired to the "Red Seal" standards, and although the average number of outlets per house decreased from 86 to 62, Red Seal standard required only 42 outlets. Thus the average of 62 indicated a decided improvement in the wiring adequacy of the smaller homes.

Mr. Wylie said talks and films presented during 1956 at 100 meetings of service clubs, church groups, schools and O.M.E.A.-A.M.E.U. conventions helped to alert homeowners to the importance of adequate wiring. Attendance at these meetings totalled 7,700.

In addition, the League staff manned displays at 14 fairs, exhibitions and home shows, and provided displays for the use of larger municipalities.

Excellent co-operation, he said, was given by member utilities of the O.M.E.A. and the A.M.E.U. The London P.U.C. promoted adequate wiring by allowing customers to repay costs of rewiring over a period of time, while the Sarnia Hydro-Electric Commission employed a Red Seal representative who held promotional meetings with contractors. Other municipalities, which took supplementary steps to

bring to the attention of their customers the benefits of adequate wiring, were Windsor, Brockville, New Toronto, Oshawa, Kingston, Simcoe, Chatham, Stratford, Sault Ste. Marie and Toronto. Ontario Hydro, Mr. Wylie said, stimulated co-operation in Red Seal activities between its regional offices and the municipalities.

Reporting on the work of the League's directors, Mr. Wylie said that, on approval of the League Standards Committee, the League Manager and the Electrical Contractors Association, Red Seal standards had been revised and published in an eight-page booklet, which was available to municipalities for distribution to their customers. The revisions, effective January 1, 1957, were based on the present requirements for electric wiring adequacy in the home, as well as requirements expected in the future.

New Method

A new method of checking wiring installations for certification was also devised, based on a method being used by the Electric Service League of British Columbia, and modified to meet conditions in Ontario.

A contract and certification form — for use by Ontario contractors in quoting on wiring installations — was available for purchase from the League by electrical contractors. The form was in triplicate, and after installation was completed, a copy was returned to the League. This copy was then used to check for certification.

This method, Mr. Wylie said, reduced the League's field work, allowing its staff to spend more time on promotional work with municipal utilities, builders and electrical contractors.

Mr. Wylie commended the Canadian Adequate Wiring Bureau which, he said, was not only advertising to promote adequate wiring on a national scale, but was also helping to form electric service leagues in provinces where none existed, so that the facts of adequate wiring could be brought to the attention of electrical customers across Canada.

"Every residence, which has adequate circuits and ample outlets is one that gives the utility the least trouble," he said. "Complaints will be at a minimum, trouble calls will be rare, and the consumer will be satisfied with electrical service."

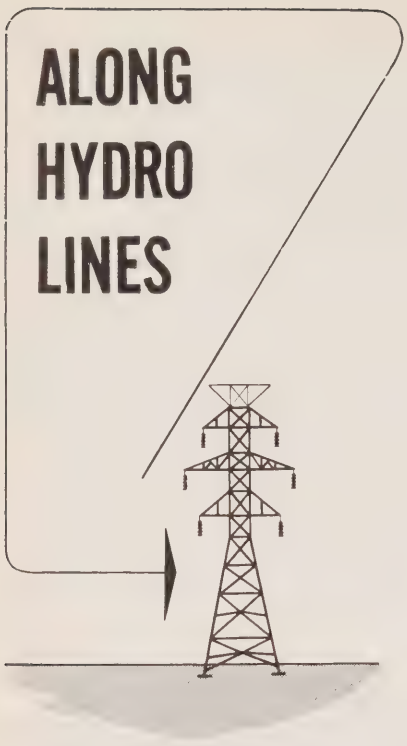
This situation would be an effective way of combating increasing competition of gas utilities, Mr. Wylie said. If consumers were to be won over to the idea that they could live better electrically through adequate wiring, local utility employees, which were important factors, and should receive training and support from commissioners and utility managers.

The construction of efficient generating plants, transmission lines and adequate distribution facilities by Ontario Hydro and municipal utilities should be paralleled by active measures toward the removal of any obstacle to an efficient electrical supply to the consumers appliances where such may exist due to inadequate circuits and outlets in the home. In this way progress would be made, standards of service would be raised and competition, effectively met. *—by Oli Daum.*



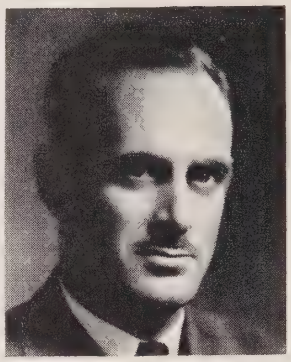
LEAGUE ELECTS OFFICERS

A HEARTY handshake was exchanged by the new and retiring presidents of the Electric Service League of Ontario during a between-sessions chat at this year's O.M.E.A.-A.M.E.U. Convention. Members of the League's executive for the coming year are, from left, I. K. Sitzer, Director of Consumer Service, Ontario Hydro, Second Vice-President; Eric Hall, First Vice-President; W. J. Wylie, Director of Consumers Service, Toronto Hydro, President; W. N. Herod, Past President; Harry Foy, Manager and Secretary-Treasurer.



HYDRO NAMES NEW ASSISTANT GENERAL MANAGER

HENRY J. Sissons, formerly Executive Assistant to the General Manager, has been appointed Assistant General Manager, Services, effective April 1. Mr. Sissons will be responsible for the newly established Services Branch, which comprises the Information, Research, Property and Supply Divisions, the A. W. Manby Service Centre and the Building Management functions in the Toronto district.



H. J. SISSONS

Mr. Sissons brings to his new position a wide range of administrative experience with both Ontario Hydro and the federal government. A 1937 graduate of the University of Toronto in Political Science and Economics, Mr. Sissons was first employed by the university as Secretary of Hart House for a period of three years. He then joined the Department of Munitions and Supply during World War II, occupying the position of Deputy Priorities Officer, and serving both in Ottawa and in Washington, D.C. For his war work Mr. Sissons received the M.B.E. in 1946. At the end of the war, he served as Export Sales Manager of War Assets Corporation in Ottawa. In 1948 he joined Hydro in the capacity of Executive Assistant to the General Manager, a position which he has occupied until the present.

In January, 1951, Mr. Sissons was loaned to the Department of Defence Production where he organized and directed the Priorities Division until September of that year, when he was appointed Co-ordinator of the Materials Branch, serving in that capacity until he returned to the Commission in 1952. In expressing his appreciation of the work Mr. Sissons had done, Rt. Hon. C. D. Howe, Minister of Defence Production, said: "We are fortunate, indeed, to have men of Mr. Sissons' experience and ability in setting up our defence program and in getting our production under way. Mr. Sissons' contribution in the materials field has been of great value to the whole program and I would like to express my thanks to Ontario Hydro for making Mr. Sissons' services available to us at this time."

First Electronic Data Processing Course Under Way

One of the first courses of its kind in Canada is now underway at Ontario Hydro, as classes in Electronic Data Processing are being held with some 50 Hydro employees, selected from 263 applicants within the Commission, as "students." The course, the first of several, will last for 17 weeks, and is an important preliminary stage in the introduction of "office automation" to Hydro. The installation of large-scale electronic equipment, known as UNIVAC II, will take place in 1958.

Meeting in specially-constructed "classrooms," the members of the first course will comprise the planning personnel that will help integrate the new system on a step-by-step basis into the Commission's province-wide organization.

The present 17-week course is divided into four parts. About 13 weeks, which are not consecutive, will be devoted to computer technology and programming. Two weeks will be given over to work simplification and methods analysis, one week to human relations as applied to systems work, and the remaining week to communications systems and equipment.

Some time this summer, graduates of the first course will carry out a province-wide survey of the present "customer data processing" procedure, throughout Hydro's nine regional offices and 105 rural operating areas. The graduates will be formed into teams with several teams operating simultaneously in a Hydro region. It is anticipated that a team will spend less than a week in each area office, recording in detail the existing processes regarding office information, in order to provide data for design of the new system.



JOHN DIBBLEE

A DISTINGUISHED Ontario Hydro career of more than forty years ended suddenly on April 4, when John Dibblee, Assistant General Manager-Personnel, died while on vacation in Jamaica. A native of Woodstock, New Brunswick, Mr. Dibblee had been with the Commission since 1917 and had observed his fortieth anniversary of service on March 1, 1957.

Recognized for the important part he played in Hydro's labour negotiations, Mr. Dibblee, who was in his 63rd year, was known as one of the best informed labour relations specialists in Canada. In paying tribute to Mr. Dibblee's personal qualities that had inspired the confidence and co-operation of many groups in organized labour, a long-time Hydro associate said: "John's dynamic personality, his vision and strength of purpose were employed in every activity he undertook. His death is a great loss to the Commission and to each one of its employees, in whose interests he worked faithfully and unstintingly."

Mr. Dibblee's role in labour relations began in 1936, when the Employee's Association was formed. He took an active part as Management's representative in the initial organization of this group and, before negotiations the following year, acted as a member of the Working Committee. In later years he became associated with the Labour Relations Committee and in 1947 assumed responsibility for representing the Commission in negotiations with the bargaining unit, the Employees' Association.

At the start of the Sir Adam Beck-Niagara G.S. No. 2 in 1950-51, Mr. Dibblee foresaw that the Commission would be involved, for the first time, in bargaining with international unions. Through his efforts, the seventeen unions involved were formed into an Allied Council so that the Commission's negotiations were carried on with the one all-embracing bargaining "agent." The Allied Council principle was later extended on a province-wide basis to construction forces on other projects. In his associations with the Allied Council, Mr. Dibblee's integrity, leadership, and knowledge of the labour relations field contributed greatly to the success achieved.

For Hydro's St. Lawrence power project, most of which was to be done by contract, he was able to visualize a situation more involved than that at Niagara. To meet the particular conditions, he was instrumental in forming an association of contractors known as the Labour Relations Association, which deals as a unit with the Allied Council. He served as President and took a leading part in its detailed negotiations.

A 1915 graduate of the University of Toronto, as a Bachelor of Applied Science, Mr. Dibblee had been a resident engineer with the firm of Smith, Kerry and Chase. He also gained valuable experience as a job foreman and as a demonstrator in Hydraulics at the University's School of Practical Science.

Mr. Dibblee's early employment with Hydro was as Station Design Engineer. He served during World War I with the Royal Air Force, and on his return to the Commission in 1919, he became District Operating Engineer for the Eastern Ontario System — serving until his appointment as General Superintendent for the Niagara Falls District in 1926. He was named Assistant Chief Operating Engineer in 1931, and six years later became Assistant Chief Engineer. In 1945 he was called upon to take over the duties of Chief Engineer—Operations and in March, 1947, was appointed Manager of Personnel. In 1955 he became Assistant General Manager Personnel.

Mr. Dibblee played a leading part in the Moral Re-Armament movement and devoted a great deal of his personal time and energy to this organization. He was a member of the Association of Professional Engineers of Ontario, and the Toronto Personnel Association. Mr. Dibblee was also a well-known member of the American Institute of Electrical Engineers, the Electric Club of Toronto and the Engineers' Club of Toronto. He is survived by his widow, three daughters and a sister.

INCREASING BENEFITS

Increasing interest in the Municipal Hydro-Electric Pension and Insurance Plan was reported by Chairman P. R. Locke, St. Thomas, during this year's O.M.E.A.-A.M.E.U. Convention.

In his summary, Mr. Locke stated that 143 municipalities were included in the Regular Plan. During 1956 a total of 11 municipalities already in the Regular Plan and 10 new municipalities entered the Supplementary Plan, making a total of 63 commissions, which had "taken advantage of the increased pensions provided under Part 11." A total of 6,100 employees were now covered under the Regular Plan.

The 80 municipalities still in the Regular Plan were advised during the year that they could subscribe to the Supplementary Plan, providing that one-third of their employees were agreeable. They were also informed that the remaining employees could join if and when they desired, at any time within a year of their commission's entry, but that all new employees with six months' service must take both plans.

During the year, 69 more employees had taken advantage of the benefits of the "extra voluntary contributions" clause, which allowed employees to add to their ultimate pension by making contributions over and above those required by the Plan. The number of voluntary contributions, as at May 1, 1956, totalled 640.

"Extra amounts paid in are determined entirely by the employee concerned, and can be increased, decreased or discontinued as desired," Mr. Locke said. "Like the regular payments, these extra voluntary contributions are deductible for income tax purposes, and also they are a convenient form of investment."

An overall summary of the committee's operations showed that the plan was paying pensions to 504 retired personnel, and in 1956 paid $175,350 insurance on behalf of 44 deceased employees. Life insurance benefits in force amounted to $26,607,860. Death claims to December 31, 1956, numbered 766, amounting to $2,348,950.

Although the plan in force was useful and comprehensive, it could give more adequate service and protection if two problems were overcome, said Mr. Locke.

Security, not now available, must be given to those employees who were ineligible for the present plan, and to those within the plan who, because of their commission's late entry, would not have sufficient pension at the date of retirement.

"At present many employees of both types are being retained in service, some of them beyond the period of normal efficiency at a considerable cost to the local systems," Mr. Locke said.

The other problem concerned the transfer of benefits between the Ontario Hydro Pension Plan and the municipal plan.

"From time to time it is to the advantage of both the Ontario and municipal commissions to transfer their employees," the chairman said. "However, until we arrive at some method by which pension and insurance benefits, as well as the technical skills and experience of the employees, can be transferred, we are not going to be able to take full advantage of the desirability such situations present."

In closing, Mr. Locke said the committee always welcomed opportunities for discussions with the municipal commissions, and was willing to supply them with information about the plan which it had the honor of administering.

—by Oli Daum.

F. H. Chandler Named Co-ordinator



F. H. CHANDLER

F. H. Chandler retired as Director of Engineering on April 1 and has assumed the position of Acting Assistant General Manager — Engineering while George D. Floyd is recuperating from an operation. Mr. Chandler has agreed to remain as Chairman of the Standards Committee on Mr. Floyd's return. In this capacity he will be responsible for the co-ordination of all Commission specifications and standards.

A native of Stratford, Ontario, Mr. Chandler received his early education there, and graduated with the degree of B.A. Sc. in electrical engineering from the University of Toronto. He was associated with Canadian Westinghouse Limited, and later served with the army during the First World War. In 1918 Mr. Chandler came to the Commission as an Assistant Engineer. His first major assignment was the installation of the third unit at Eugenia G.S., and this was followed by work on the engineering and design of all types of stations. Mr. Chandler was appointed Stations Engineer in 1943, and occupied that position until 1953, when he was named Assistant Director of Engineering. He became Director of Engineering in April, 1956, succeeding the late J. R. Montague.

Active in professional and other electrical associations, Mr. Chandler is a Past President and life member of the Electric Club of Toronto; a member of the Association of Professional Engineers of Ontario and the American Institute of Electrical Engineers.

Joe: "Will you buy a ticket on a raffle for a young widow?"

Blow: "What's the use? If I won, my wife wouldn't let me keep her."

Former Commissioner Dies at Chatham

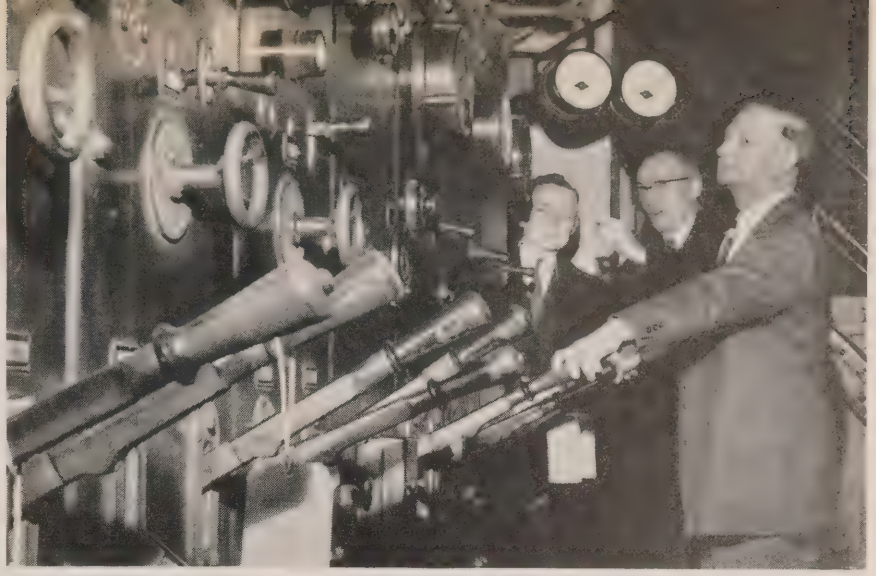
A member of the Chatham Public Utilities Commission for 23 years and a leading figure in civic affairs, Fred Biette died at his home in Chatham after a brief illness. A native of Newcastle, Durham County, Mr. Biette received his early education there. He joined the staff of the Western Bank of Canada in 1883 at Oshawa. Six years later he was transferred to Paisley as Manager, becoming at 23 years of age the youngest bank manager in Canada. Ten years later Mr. Biette moved to Tillsonburg and became active in civic and fraternal circles. When the Western Bank was absorbed by the Standard Bank, Mr. Biette was transferred to Chatham as Manager in 1916 after having served for 41 years.

With many civic interests including the Children's Shelter, the Board of Trade, General Hospital Board and Masonic Order, Mr. Biette served Chatham as a Hydro Commissioner from 1926 until 1949. He had been on the executive of the Ontario Municipal Electric Association for 20 years and at the time of his death was an Honorary Vice-President.

Surviving are his widow, one daughter, four grandchildren and seven great-grandchildren.

H. B. Mattson Assumes New Duties

H. B. Mattson has resigned from his position as Manager of Preston Public Utilities Commission as of March 15, 1957, to assume new duties as Manager of the newly-formed Township of Sandwich East Public Utilities Commission. Associated with the Preston Commission since September, 1950, Mr. Mattson first served as Manager-Engineer of the P.U.C. and also Town Engineer. Later he became utility manager-engineer on a full-time basis.



AT ST. THOMAS, ERNEST POMFRET CUT THE POWER while R. M. Laurie, Manager of Hydro's Western Region (left) and V. A. McKillop, General Manager of the London P.U.C. watched.

END OF AN ERA

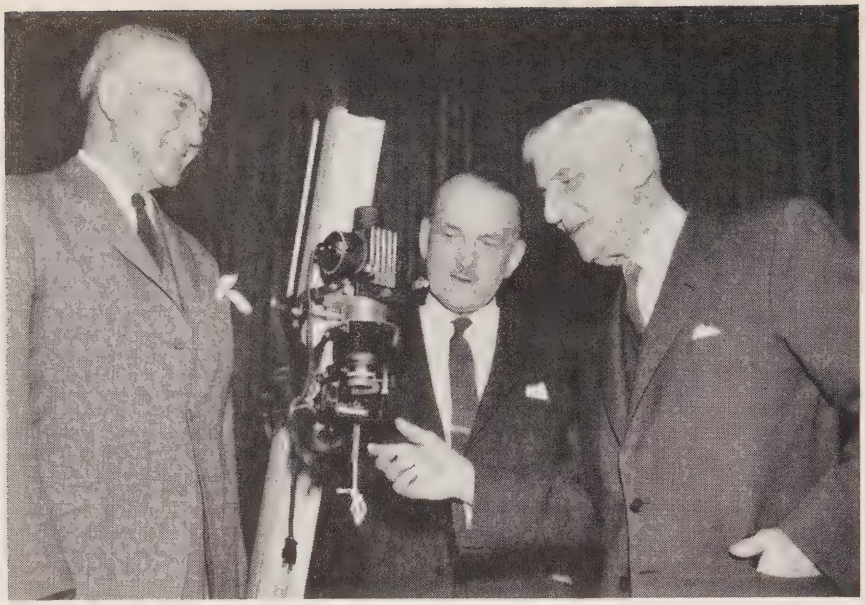
In a ceremony that brought with it many reminiscences, the London and Port Stanley Railway ceased operating its passenger service on February 1 this year. Power supply to the railway was cut off officially at a brief meeting of Ontario Hydro and municipal representatives at St. Thomas Transformer Station.

The switch controlling the railway circuit was formally opened by Ernest Pomfret, a retired Ontario Hydro employee and the man who, as shift operator, had closed the switch when service began 41 years ago. R. M. Laurie, Manager of Hydro's Western Region, spoke briefly at the ceremony, and said that, due to the fact that operation of the rotary converters had been discontinued, considerable transmission and transformer equipment previously used on the 25-cycle supply to the converters would now be made available for 60-cycle service, greatly increasing service security to St. Thomas and Elgin County.

After the ceremony, the switch was closed again to allow the last train to make its run. Some 20 passengers took the last train from London, and 10 of these made the return run from Port Stanley to London.

The L. and P.S. Railway required direct current power. Rotary converters had been employed to convert the 25-cycle power, and these had been installed at the transformer station in 1915 as the property of the railway. However, the completion of Hydro's frequency standardization program in St. Thomas had made it impossible to continue to supply 25-cycle power. The large expenditure involved to replace the converters with mercury arc rectifiers was not considered warranted by railway officials, and they decided to discontinue passenger service on the revenue-losing line.

In recalling the early days of the railway, E. V. Buchanan, former Manager of the L. and P.S. line and retired General Manager of the London Public Utilities Commission, said that St. Thomas had been selected as the location for the converters, because it had been expected that an electric railway would be built from St. Thomas to Aylmer, ultimately extending as far as Port Burwell and Tillsonburg. This was part of an extensive program of Sir Adam Beck, who had planned to cover a large part of Ontario with railway lines. It was for this reason that the original converters had been of a greater capacity than required. The original converters were replaced by smaller units in 1933. ■



HONOR M. J. McHENRY

PROMINENT in engineering circles for many years, Morris J. McHenry, Consultant, Engineering Standards for Ontario Hydro, was honored at a recent testimonial dinner in Toronto to mark his retirement. With wide experience in electrical sales and public utility work, Mr. McHenry joined the Commission's staff in 1938 to head the newly-formed Sales Promotion Department. In 1947, he was appointed Director of Consumer Service. In 1953 Mr. McHenry became a Consultant, subsequently being named Co-ordinator of Specifications and Standards. Active in other circles Mr. McHenry, who served as Manager of Walkerville Hydro-Electric Commission in 1918-1919, is a former President of the A.M.E.U., the Electric Service League of Ontario and the Canadian Adequate Wiring Bureau. In the photograph Mr. McHenry, at right, is shown with W. Ross Strike, Q.C., First Vice-Chairman, at left, and A. W. Manby, General Manager, as they admire the photographic enlarger presented to the guest of honor.

NIAGARA AND ST. LAWRENCE

(Continued from page 28)

this area, as well as the many businesses and industries."

Planning for new Iroquois, the new section of Morrisburg, Ingleside (Town 1) and Long Sault (Town 2) had been completed, and in Iroquois the construction work and house-moving was virtually finished. Meanwhile, work was proceeding in the other three urban rehabilitation areas.

Dealing more specifically with this program, Dr. Holden said that in Iroquois, more than 140 houses had been moved to new sites, and, in addition, some 100 new houses had been built or were under construction. The shopping centre would be ready for occupancy early this year.

"In Morrisburg, the general plan for the new section of the town to replace the affected portions has been approved," Dr. Holden said. Work was well advanced here on the installation of a water and sewer system, and the moving of houses and construction of a new business area had been started.

Plans for Ingleside and Long Sault had been, of course, approved. To date some 40 houses had been moved into Ingleside and over 100 into Long Sault. In all, some 325 houses had been moved to date in the rehabilitation program.

Contracts for the construction of some new churches and schools had been let in all communities, and the work is in progress. Dr. Holden stated also that over 70 per cent of the 2,000 properties required or affected had been secured or their moving arranged.

Total personnel engaged in the work was, at the present time, 5,900, he stated. Of this number 2,200 were employed on the U.S. side and 3,700 in Ontario. During last summer 4,500 persons were employed on the Ontario side, and it was possible that this number would be exceeded during the coming summer.

"It gives me pleasure," Dr. Holden concluded, "to report that our relations with the Power Authority of the State of New York continue on a mutual basis of the utmost confidence and respect. The design and procedures with regard to the various elements of the project are co-ordinated by frequent meetings between engineers and management of both entities."

The Power Authority of the State of New York and Ontario Hydro had, together, established with the various regulatory bodies a confidence resulting in the closest co-ordination and co-operation. "It is the aim of the Power Authority and ourselves," Dr. Holden said, "that this confidence shall be maintained."

—by Gary Smith.

Approve New Silver Falls Station

Ontario Hydro will start construction this spring on a single-unit, remote-controlled, 43,500-kilowatt generating station at Silver Falls on the Kaministikwia River, about 25 miles northwest of Port Arthur.

Scheduled for service late in 1959, the new plant, together with other developments presently under way, will add 206,900 kilowatts to the generating capacity in the Commission's Northwestern Division by that time. Present resources total 370,800 kilowatts in this area.

Construction of the single-unit, Silver Falls project will involve building a 9,000-foot tunnel, 14 feet in diameter, from the intake at Dog Lake to the powerhouse. Six miles of new access road will be required as well as improvement of ten miles of existing road. The plant will be remotely controlled from Transformer Station No. 1 in Port Arthur.

McMaster to Begin Four-Year Engineering Courses This Fall

The establishment of a program of engineering studies leading to the degree Bachelor Engineering (B. Eng.) has been announced by Dr. George P. Gilmour, President of McMaster University, Hamilton. Four-year courses are to be offered in Chemical Engineering, Electrical Engineering, Mechanical Engineering, Engineering Physics, and Metallurgy, and it is planned to enrol 50 first-year students in September, 1957.

"The addition of engineering studies to our educational program," Dr. Gilmour stated, "is a natural expansion of the scientific activities of Hamilton College. The staff and facilities in physical sciences have grown rapidly since the war, and will provide the firm foundation of basic science and mathematics, which is so necessary in a modern engineering curriculum."

Dr. John W. Hodgins, B.A. Sc., Ph.D., F.C.I.C., is Director of Engineering Studies and Professor of Chemical Engineering. Formerly Professor of Chemical Engineering at the Royal Military College, Kingston, Dr. Hodgins has been planning the courses and facilities for the new school.

STREET LIGHTING PROPOSALS

(Continued from page 29)

This structure could be applied universally to the various municipalities, inasmuch as the annual load factor for street lighting was fixed, the demand was known and the time of use was fixed by the hours of daylight and darkness.

Mr. Murdock said only equipment which had actually to do with street lighting would be taken into consideration in computing the capital charges. Allowance would be made for the portion of street lighting capital repaid during past years in the form of debenture principal, and fixed charges would be set up on the balance on the basis of a 20-year serial debenture.

Future additions to street lighting capital would be handled similarly so that under this system, all money provided by the utility for street lighting purposes would be repaid in 20 years from the time the capital was supplied. Depreciation charges would continue as in the past at the approved rate used by the utility for general purposes.

The cost of operating and maintaining the street lighting equipment constituted the third item in the proposal and the actual expenditure incurred would be included as part of the total street lighting bill.

In concluding his remarks Mr. Murdock told the delegates that the new method had been tested in approximately 35 municipalities, based on 1955 conditions, and in nearly every case a reduction in street lighting charges was indicated. ■

Convention Caricatures



E. D. ELWES
Paisley



SAM ASHTON
Port Arthur



THOMAS STEVENSON
Chesley

VISIT CANADA'S "BIGGEST" - These five Toronto secondary school teachers express keen interest in the operation of Ontario Hydro's Richard L. Hearn Generating Station, Canada's largest thermal-electric station, during a recent tour of the plant. A member of the plant's staff points out features of the wiring system to, left to right: D. A. Bristow, John B. Palmer, G. W. Erwin, Joseph C. Quinn and Robert Greenwood. These visitors were among 14 Metropolitan Toronto teachers who participated in the Hydro tour arranged in conjunction with Business-Education Day sponsored by the Toronto Board of Trade during Canada's observance of Education Week.







PRESS PRIZES - Presentation of the Ontario Hydro Award of Merit in recognition of excellence in news reporting was made at the recent convention of the Ontario Weekly Newspapers Association held in Toronto. James A. Blay, the Commission's Director of Information (right), presented the plaque emblematic of Hydro's highest award for achievement in rural reporting to William James, Editor of the Bowmanville "Canadian Statesman." Mr. James accepted the award on behalf of Gordon Agnew, the paper's Newcastle correspondent. Two rural correspondents were honored with Certificates of Merit: Evelyn Crickmore, Erindale, "Clarkson Party Line" and Esther Heyes, Caledon East, correspondent of the "Bolton Enterprise." Honorable Mention awards went to Mary Moore, Fordwich, "Harriston Review"; Mrs. Jas. Peden, Thamesford, "Ingersoll Tribune"; Mrs. Donald Smellie, Thornhill, "Richmond Hill Liberal"; Vi Marvin, Wellington-on-the-Lake, "Picton Times"; Mrs. M. E. McFadden, Cookstown, "The Beeton World"; Mrs. Wesley Bradnock, Auburn, "Goderich Signal-Star"; Miss Lina Abbott, Lucan, "Exeter Times-Advocate," and Miss Marion Pearce, Waterford, "Simcoe Reformer."

NEW HOME OWNER

(Continued from page 9)

ame period, the number of custom-rs served had tripled from 755 to .357.

Extends Congratulations

Before cutting the ribbon, Lt.-Col. Kennedy, on behalf of Ontario Hydro, tendered his heartiest con-ratulations to local commissioners . F. Warner, Chairman; E. C. Drew, Vice-Chairman; W. H. Mun-en, Secretary-Treasurer; Reeve S. . Bradley; E. S. McNeice, Mana-er, W. H. Munden, Secretary-Trea-urer, and the staff "on the fine new uilding, which they so justly de-erve." Other brief messages of ongratulations were extended by . P. Cliff, Ontario Hydro Commis-oner and O.M.E.A. Secretary-reasurer; John Torrance, Director--large, A.M.E.U., and D. B. Ire-nd, Consumer Service Engineer, oronto Region.

Located at 30 Stavebank Road in easant, well-kept surroundings, ithin easy walking distance of the ain business section, the Port redit P.U.C. office and service uilding formerly housed the village e department. Skilful and exten-ve alterations have resulted in such complete transformation, however, at even the oldest citizen has diffi-lty in recognizing the present uilding. The exterior has been nished in a pleasant blending of one and white stucco, which mirably complements other archi-ture in the district. Air-condi-ning, fluorescent lighting and the est in office equipment and furn-ings combine to make the interior model of utility accommodation. e staff had formerly occupied ace in the local municipal build-g.

Inspect Substation

Following the opening ceremonies sts were invited to inspect the mises, and several took the op-tunity later to visit a new, metal-d substation erected by the local mmission to share the greatly increased power load with an earlier substation built by Ontario Hydro. As a prelude to the official opening, a luncheon was served at the Canadian Legion Hall where more than 100 guests and officials were welcomed by Vice-Chairman Drew.

Situated at the mouth of the Credit River on Lake Ontario within sight of the long shoreline of Toronto, Port Credit had its inception as a Hydro community as early as 1912. The following year the Port Credit Hydro-Electric System was serving 116 customers while the average domestic monthly consumption was 23 kilowatthours. From this humble beginning, for nearly half a century, this electrical utility has supplied the power needs of the community, and looks forward to a new era of economic development with renewed confidence.

—by Don Wright.

Convention Caricatures

By "Mac", Toronto Telegram Caricaturist



N. H. ECKENSWEILER
Walkerton



ARNOLD LUCAS
Arkona



RALPH AITCHISON
Coldwater



W. S. OTTON
Leamington



R. A. COZENS
Lindsay

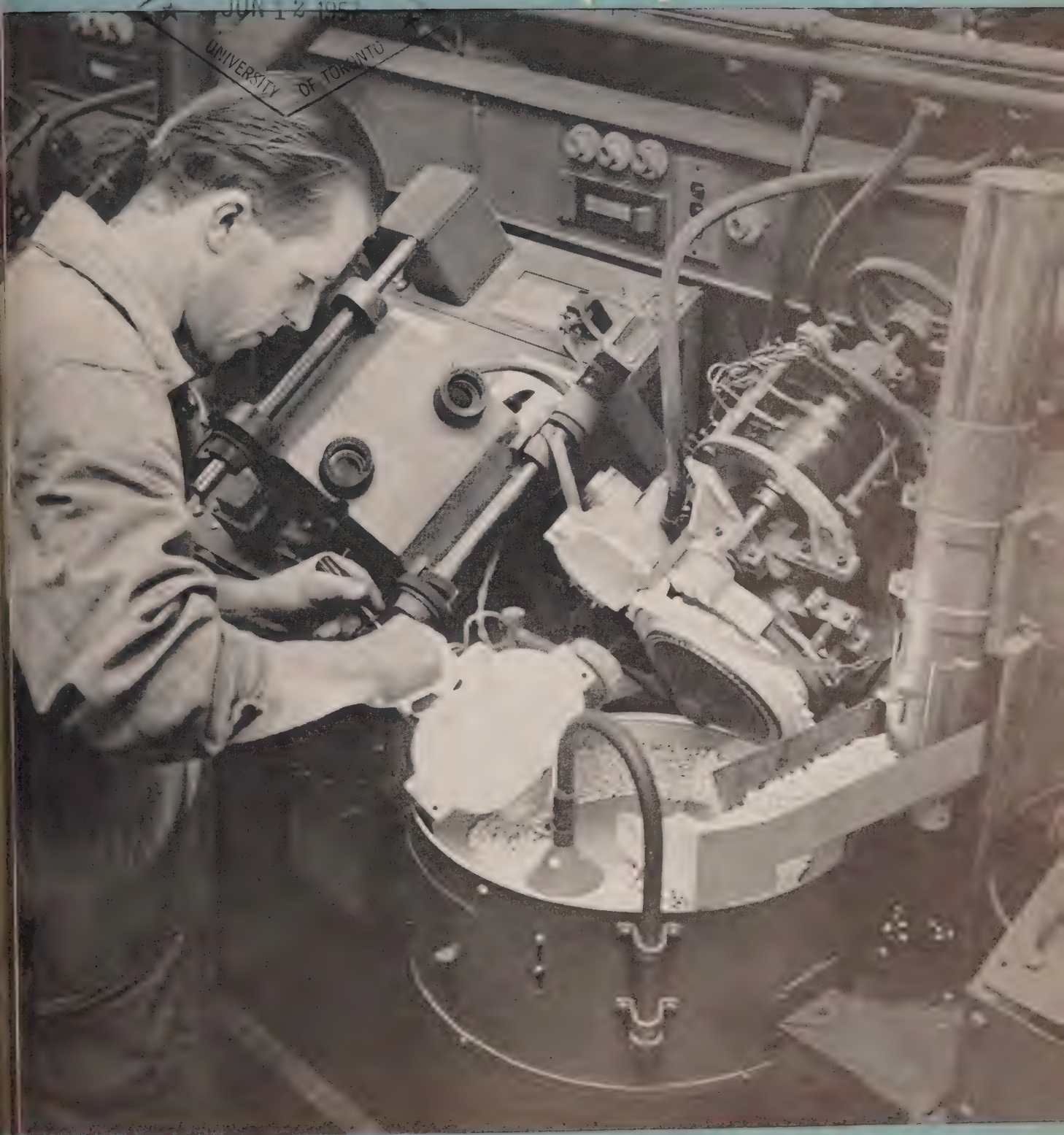


PAUL DUCHARME
Tecumseh



ONTARIO HYDRO News

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ELECTRIC-EYE BEAN SORTER

May, 1957

ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
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MAY, 1957

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POWERFUL POSITION

In its latest annual review of the water-power resources of Canada, the nation's Water Resources Branch directs attention to the "remarkable growth" of water-power development in Canada, and the dynamic role of water-power in aiding Canadian industrial expansion since the inception of long-distance transmission of electricity more than a half-century ago.

Last year 845,000 horsepower of new hydro-electric generating capacity was placed in operation, bringing the total installed capacity to 18,356,148 hp. This is in striking contrast with the insignificant total of 177,323 hp. installed at the end of 1900.

The water-power summary also stresses the close relationship between this form of energy and industrial expansion across Canada. This, the review states "is particularly evident in southern Quebec and Ontario, which, although lacking indigenous coal, have become the most highly industrialized regions of the country through the use of their large water-power resources." Enlarging on this subject, the review focuses scrutiny on the fortunate incidence of water-power in close proximity to mineral resources, pulpwood and other natural resources in many parts of Canada—a factor that has helped immeasurably in promoting the high degree of industrialization in Ontario and Quebec. Both provinces, for example, are prominently identified with the pulp and paper industry, which leads all other manufacturing industries in the net value of production. Water-power and this industry are very closely related, the review points out, since a mechanical power installation of approximately 100 hp. capacity is required to produce a ton of newsprint today. The Water Resources survey indicates that 95 per cent of the electrical requirements of the Canadian plup and paper industry today are supplied by water-power developments.

The provinces of Ontario and Quebec, which contain nearly 50 per cent of the total available power and almost 76 per cent of the developed power, have now developed about 38 per cent of their presently recorded total resources. According to the annual survey, Ontario ranks second in power production among the provinces, and has developed about 58 per cent of its recorded available resources. Sites in remote and relatively inaccessible locations constitute a substantial portion of the remaining 42 per cent, the St. Lawrence Power Project being the last major source of hydro-electric power within economic transmission distance of the province's principal load centres. The high rate of water-power development in the province is attributed largely to the operations of Ontario Hydro, which the review describes as "the greatest power-producing and distributing organizaion in Canada."

The power survey reveals the interesting fact that Canada has an average per capita water-power installation of 1.15 hp., which places the nation in an outstanding world position. On this basis Canada is second only to Norway, while she is exceeded only by United States in total water-power installation. Although this country has developed its water-power resources extensively in the past 50 years, it is reassuring to learn from the summary that "the present total turbine installation of 18,356,148 hp. indicates the development of less than 25 per cent of the recorded water-power resources of Canada."

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COVER SHOTS

Our front cover this month depicts an unusual electronic device known as an "electric-eye" bean sorter, which can grade some 200,000 beans an hour. It is just one of a battery of more than 75 of these machines in a co-operative plant at London, Ontario, as described in our article "Beans Talk Money" on Page 10 of this issue.

Our back cover, with its ranks of tall tulips, salutes the advent of summer.



"LOBBYING" AT ITS BEST



No, THIS charming feminine trio does not represent a "lobby" group! The three young ladies — left to right: Misses Rose-Marie Beaulieu, Joyce Ireland and Shirley MacKay — are members of the Sudbury Hydro-Electric Commission staff and they're admiring the novel ivy planters in the impressive main entrance of the Nickel City's new utility building. A description of the recent ceremonies which marked the official opening of the handsome civic structure appears on Page 18 in this issue.

Model Housekeepers



TESTS under way on Hydro's St. Lawrence hydraulic model No. 3, one of nine models located at the A. W. Manby Service Centre, Toronto.

Fire hose, brushes and just plain "elbow grease" are prime necessities in keeping Ontario Hydro's hydraulic power project replicas clean and accurate

BY DON WRIGHT

THIS is the time of year when a kind of madness descends upon the good housewives of the land. Instead of contemplating upon the wonders of nature awakening 'round them, they lose themselves in a world of carpets and curtains, walls and ceilings. Grime has become their common enemy, and husbands come trembling home at night expecting to find chaos where order once reigned—fearful of the unfair demands upon back and muscle that are sure to follow.

In short, it is spring-cleaning time again, and while there may be general sympathy for the desperate male members of the household, their domestic labors will be light in comparison with the housekeeping effort demanded of a small group of Ontario Hydro personnel every six months. It is their herculean task, performed with the aid of brush and water, to scrub down, inch-by-inch, a 35-mile section of St. Lawrence River terrain—with several square miles of Niagara River landscape thrown in for good measure. They completed this job again, just recently, and while the feat loses some of its wonder, considering that a single stroke of the scrubbing brush will clean hundreds of feet of territory, the staff at the Hydraulic Model Laboratory at the A. W. Manby Service Centre still has a real job on its hands each time a scrub-up is declared.

Two-day Shutdown

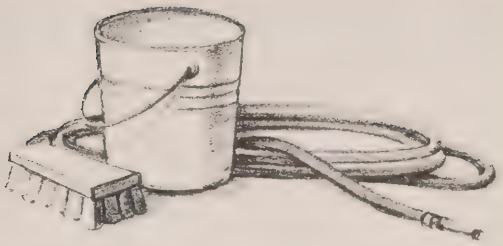
Everything is shut down at the model centre during the two-day cleaning period, and with the turn of a valve the mighty St. Lawrence and turbulent Niagara Rivers cease to flow. Technicians then discard their instruments in favor of fire hose, brushes and rubber boots. While the job calls for plenty of elbow grease it must be carried out with a delicate touch, particularly in the river bed sections of the models for the thousands of thin metal strips used to simulate the roughness of the actual river bottoms must not be disturbed in the slightest degree. In addition to some 22,000 square feet of model surface that must be scoured, there is 600 feet of 12-inch watermains and trenches in the circulating system that must be scrubbed as carefully as a kitchen floor.

There is more than a passion for cleanliness behind this model housekeeping, however, for foreign material in the water, which flows through the models at the rate of 8,000 gallons a minute, can actually interfere with the efficiency of the tests. As the months go by, a marine growth develops on the water pipes, some of which is carried off to collect on the water velocity instruments, affecting their accuracy. The same type of slime coats the concrete surface of the models, and thereby reduces their hydraulic roughness—again at the expense of accuracy.



△

.NTI-FREEZE is ejected from this hydrant eside the laboratory before Technicians ohn Antonucci (left) and Gerry McKeown ttach the hose used in the "scrub-down."



A MAJOR phase of the cleaning operation was the scouring of some 600 feet of 12-inch waterpipe and trenching in the circulating system. Marine growth develops here and collects on instruments and surfaces of the models, thus reducing the accuracy of important hydraulic tests.

▽



'he dyes used to facilitate some of ıe tests are another source of "foul-ıg."

World Famous

Appearance, of course, is the other onsideration as these valuable tools f engineering and construction have ttracted almost world-wide atten-on. It is estimated that some 2,500 isitors from 16 different countries ıspected the models last year, with heavy sprinkling of such dignitaries s ambassadors, generals, and ad-ıirals among their ranks. The ıodels were photographed, televis-l, and described in a dozen leading ublications to an extent where even beauty queen might envy their ıare of the spotlight. Model main-nance includes the patching of acks that appear, from time to me, in the concrete skins of the odels, while painting of the sur-ce features in the various colors ed to assist in visitor orientation is

(Continued on page 4)

THIN JET of a garden hose replaces the normal 8,000-gallons-a-minute flow as Technicians Stan Solarski (left) and Eugene Dyczak scrub down the bed of Model 8, which reproduces a section of the St. Lawrence River in the Iroquois dam vicinity. The nine models have a combined surface area of about 22,000 square feet.



CONTENTS of the wheelbarrow (left) and the refuse pile in the trench indicate the debris which collects between "clean-ups." Technicians Ken Gray (left), Gerry McKeown and John Antonucci (background) are mopping up the sand and concrete chips, which are carried away with the water during alterations to the large hydraulic models.



another model "housekeeping" job.

The Hydraulic Model Laboratory is continually in a state of flux, for many of the engineering and construction problems encountered on the projects themselves end up at the laboratory for solution — often necessitating the building of a new model to reproduce an area on an expanded scale. When earlier models have served their purpose they are dismantled to make room for new replicas. Even so, space is a problem, and during 1956 a 130' x 65' addition to the centre was required in order to accommodate an expanded section of the Iroquois dam area. Model No. 9 of the St. Lawrence powerhouse section was completed later in the year, and this involved an increase in the water pumping capacity of the system, as well as the electrical supply.

New Northern Model

In the northwestern section of the province, Hydro is adding a new unit to its Cameron Falls Generating Station, but before construction commenced a model was built so that headrace and tailrace excavations could be mapped out in advance. Model No. 6 of the Massena intake works associated with the St. Lawrence Power Project was dismantled to accommodate this newcomer. Over on the Niagara River, the United States authorities are proceeding with plans for the pro-

posed Lewiston development, and once again the assistance of the model centre has been solicited. In this case the present Niagara model is being revamped to permit a detailed study in connection with the necessary intake excavations. This work is being carried out on a cost basis.

As the St. Lawrence Power Project progresses, the value of the hydraulic model technique for circumventing engineering and design problems is becoming more and more evident. In the scores of tests already conducted, information provided by the model centre has proved accurate when applied at the actual site, and it is expected that this method of predetermining methods and requirements will save millions of dollars in construction costs.

Co-ordination of effort is essential on so vast and complicated a project as the St. Lawrence where navigation and river levels must be a prime consideration. For example, in December, 1956, for the first time, the entire flow of the St. Lawrence River was diverted through a man-made structure, when the first 15 sluices of the Iroquois dam were placed in operation. This permitted construction of cofferdams in the former natural course of the river to enable building of the remaining 17 sluices "in the dry." The entire river flow was again diverted through the newly constructed 13 sluices of the Long Sault dam in April to permit completion of this structure. Other structures, such as cofferdams, finger dykes or rim dykes, being placed or removed, all have an effect on flow so that a constant check must be kept of progress on both sides of the river and in all sections of the project. The models have been of great assistance in this regard, and there have been instances where the model engineers have had to alter the plans of individual contractors in the interests of the overall project. ■

FROM COAL TO CONCRETE

BY GARY SMITH

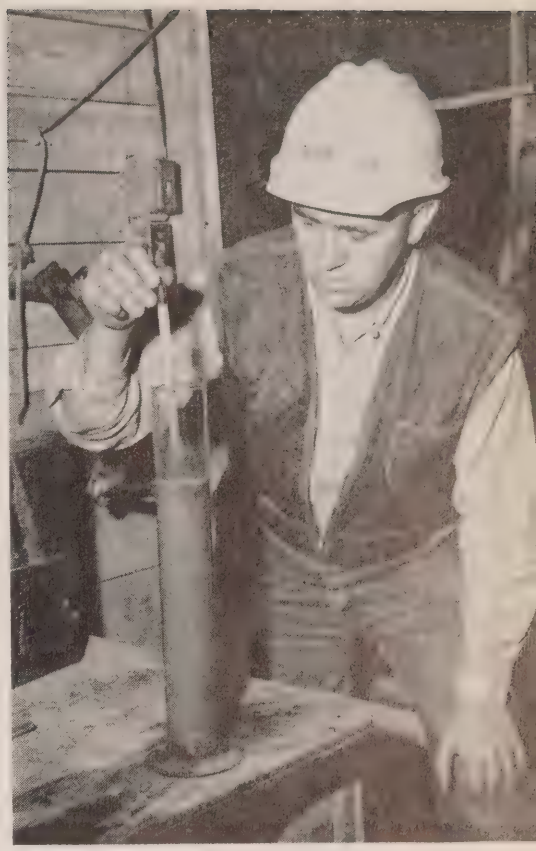
ONTARIO Hydro engineers assigned to the St. Lawrence Power Project have found, in the operation of Hydro's new thermal stations, the answer to a minor construction problem.

A material called fly-ash, a carbon deposit extracted from the waste products of a thermal-electric plant where powdered coal is burned, is being used in the concrete mix going into portions of the St. Lawrence Project powerhouse. Its purpose: to minimize the possibility of shrinkage and subsequent cracking of the concrete.

The properties of fly-ash, which actually consists of minute particles of impure glass, were investigated by Hydro between 1949 and 1953 during construction of the Otto Holden Generating Station on the Ottawa River.

It had been found that the heat generated by the setting process, which occurred following the placement of concrete in large structures, caused expansion with a subsequent contraction and possibility of cracking. This possibility could be minimized, it was discovered, if it were possible to lower the temperature of the setting concrete so as to cut down on shrinkage or contraction.

Additional study showed that replacement with fly-ash of a percentage of the cement normally used in a concrete mix caused a pozzolanic reaction, which had the effect of lowering the maximum heat generated in the setting process by roughly the percentage of fly-ash used. Replacement of 20 per cent of the cement with fly-ash lowered the heat sufficiently to minimize the danger of cracking while the concrete was actually strengthened.



FLY-ASH is first combined with water before being piped into the concrete mix. Here an inspector tests the specific gravity of a sample of water and fly-ash to make certain that the correct proportions have been used.

The blueprints for Hydro's St. Lawrence powerhouse called for large concrete beams of unusual dimensions to support the roof of each of the huge ice-sluices associated with the powerhouse.

Following an exhaustive study of the problem at Hydro's Research Laboratories on Strachan Avenue in Toronto, it was recommended that fly-ash be used in the mix prepared for these beams.

Mixed with water, the fly-ash is pumped into a tank from which it is measured, with the other ingredients, into the concrete mixers. ■

Civic leaders witness formal inauguration of

Toronto Hydro's new System Control Centre

TORONTO'S NERVE CENTRE

Regarded as one of the most up-to-date in North America, Toronto Hydro's new System Control Centre was officially inaugurated recently in the presence of a group of Toronto and Leaside civic officials, as well as Toronto Hydro and Ontario Hydro representatives.

The formal opening of the imposing, three-storey structure followed a civic dinner tendered by the Toronto Electric Commissioners in honor of Leaside and Toronto municipal representatives.

Reviewing 1956 operations during the presentation of Toronto Hydro's annual report to these civic officials, Chairman Bert Merson described the vital role the control centre would have in handling the increasing electrical requirements of Toronto and Leaside customers.

Mr. Merson left it to Chief Engineer H. B. Little to describe the technical facilities and operation of Toronto's new electrical "nerve-centre."

Designed by the Toronto System's Station Planning and Design Department under Harry J. Chambers, now Assistant Chief Engineer, the handsome structure, erected and equipped at a cost of $672,000, occupies a central city location at 60 Eglinton Avenue West.

Control engineers, working on a 24-hour, "three-shift" schedule coordinate all aspects of the municipal utility's complex electrical operations from the third floor control room in the new building.

System Diagram

Main feature of the control room is a "map" of the system, which is composed of 142,000 one-inch square tiles, and is known as the System Diagram Board. The face of the 100-foot diagram board, which stands nine feet in height, consists of one-inch square tiles, each of which is attached to a metal frame by spring clips. The desired diagram is indicated by engraved, colored tiles. To alter or add to the diagram, tiles are removed and suitable replacements are attached. In this way the control engineer can ascertain, at a glance, the condition of power circuits in all the principal stations.

"The board is completely flexible to take care of equipment and circuit changes in stations, which are taking place constantly, at present, as the 25-cycle supply is changed over to 60-cycle," Mr. Little told his audience. "On this board are single-line diagrams of 137 stations. Of these, 10 are Ontario Hydro terminal stations, which receive power at 115,000 volts and step it down to 13,200 volts for the 127 distribution stations on the Toronto Hydro-Electric System."

The system diagram board is not connected physically or electrically to the stations. All alterations to the diagram are made manually by the control engineer. The tiles indicating circuit breakers and disconnecting switches can be rotated, changing the position of the colored strip from vertical to horizontal. A vertical position indicates that the switch is closed, while horizontal indicates that the switch is open. Other tile designs indicate load-break switches, transformers, cable potheads, rectifiers, etc. Only power distribution circuits and equipment in stations are represented on the huge board, the various colors indicating voltage and frequency instantly.

Mr. Little pointed out that the design of devices for opening and closing circuits has progressed from the knife switch, which was opened and closed by hand, to the modern, low-oil capacity circuit breaker, the air blast circuit breaker and other types.

"These devices," he said, "are operated by electricity or compressed air, and may be opened or closed by controls located at a point remote from the circuit breaker. By the use of relay equipment, they can be made to open and close automatically under predetermined conditions."

Supervisory Control Equipment

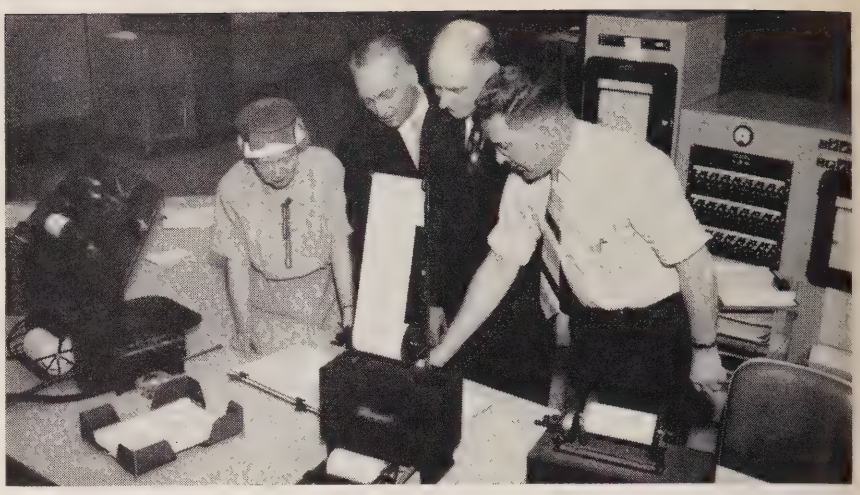
"In the control centre we also have the 'transmitting' equipment for operating 'remotely' through receiving equipment in the stations. This is known as 'supervisory control.'"

This equipment, supplied by a Toronto firm, consists of 23 cubicles, and contains the controls for 800 circuit breakers in 26 stations. In addition to operating circuit breakers, the supervisory control facilities provide voltage and current readings, while equipment faults are also indicated. One pair of wires only is required between the control to enable the supervisory

(Continued on page 8)

WELL-PLANNED exterior lighting enhanc the pleasing architectural design of Toror Hydro's System Control Centre on Eglint Ave. W.





AT THE main control desk, three Toronto representatives — left to right: Aldermen Mrs. Mae Birchard and J. A. McVicar and Chief Constable John Chisholm examine load statistics with Load Engineer Robert Simms.

control equipment to perform a multitude of functions. Thus, the control engineers of Toronto Hydro literally have the system at their fingertips. Also, from their desks in the centre of the room, they have a complete view of the system diagram board, and can take instant action to correct faults or handle emergencies.

Everything is literally under control at the control centre, Toronto Hydro Chairman Bert Merson told the civic officials at the dinner tendered before the official opening.

"The control centre has been financed without resorting to borrowing," said Chairman Merson, "and over the past 10 years, our (Toronto Hydro) borrowing has been limited to $8,150,000, although we have spent approximately $36,603,000 on land, buildings, equipment and other capital expenditures during this period."

The difference had been financed by using assets in the depreciation reserve and from net income, he said. As a result, interest charges associated with debenture issues had been avoided. This had assisted the Toronto System in keeping the average rate per kilowatthour down to slightly below that of 1937. Thus, while increasing fixed assets by $36,603,000, the Toronto utility had, with only one exception, kept out of the money market during a period when the city itself, of necessity, was forced to do considerable financing.

"All of this, we feel sure, has reflected to the city's credit and benefit," the speaker observed.

Three Functions

Mr. Merson told the gathering of municipal leaders that the control centre dealt with three functions of the commission's operations. The supervisory work would be carried out there by Toronto Hydro's control engineers, who watch and regulate the electric loads across the system. When standardization was completed in some two years' time, all of the utility's manually-operated stations would be of the remote control type. The control engineers at the centre would then have the complete control of and responsibility for all the switching in regard to load changes, whether they be normal or caused by trouble on the lines.

The trouble dispatchers (the men who receive trouble calls and dispatch emergency crews as the needs arise) would also operate from the new building. Mr. Merson pointed out that Toronto Hydro maintains trouble crews on 24-hour basis. In addition, there was at least one line crew, as well as technical personnel and one senior official, on standby duty over all weekends and holidays. The trouble dispatchers call on the standby personnel, when necessary. By means of two-way radio, they also keep in touch with the crews on trouble jobs, advising them as to the equipment they are likely to require, and the other needs of a particular situation.

Toronto Hydro's Chairman recalled the storm of hurricane proportions that hit a section of north Toronto in 1956. At that time, the control centre was only in partial use, yet it proved its worth. The antenna on the building was placed at the disposal of the Toronto Police Department, when the police antenna blew down at the height of the storm. Toronto Hydro engineers and trouble dispatchers, with the aid of the utility's two-way radio system, were of considerable help to the Parks Department in connection with tree removal and clearance of debris on the streets.

"From all this," continued Mr. Merson "you will gather that we are quite proud of our new control centre and its operations, dealing as it does with the many variations of power load and other conditions, as it serves the people of Toronto and Leaside."

Ingenious and accurate as were the recording devices, said Mr. Merson, the human control by Hydro's engineers and other trained personnel was all-important. These men must be ready every minute of the day and night to handle both the usual and the unusual. An electrical system such as Toronto Hydro was fraught with complex problems and responsibilities, and it would be an error to complacently accept the services of these devoted servants of the people as a matter of course.

—by Horace Brown.



◁ MEMBERS of this group — left to right: Mayor Charles Hiscott, Leaside; Chief Load Supervisory Engineer James Gillmor, Toronto Ald. K. G. Waters and Assistant General Manager J. S. McGregor examine a supervisory control panel while Edward Walker, operator, takes a reading for the records.

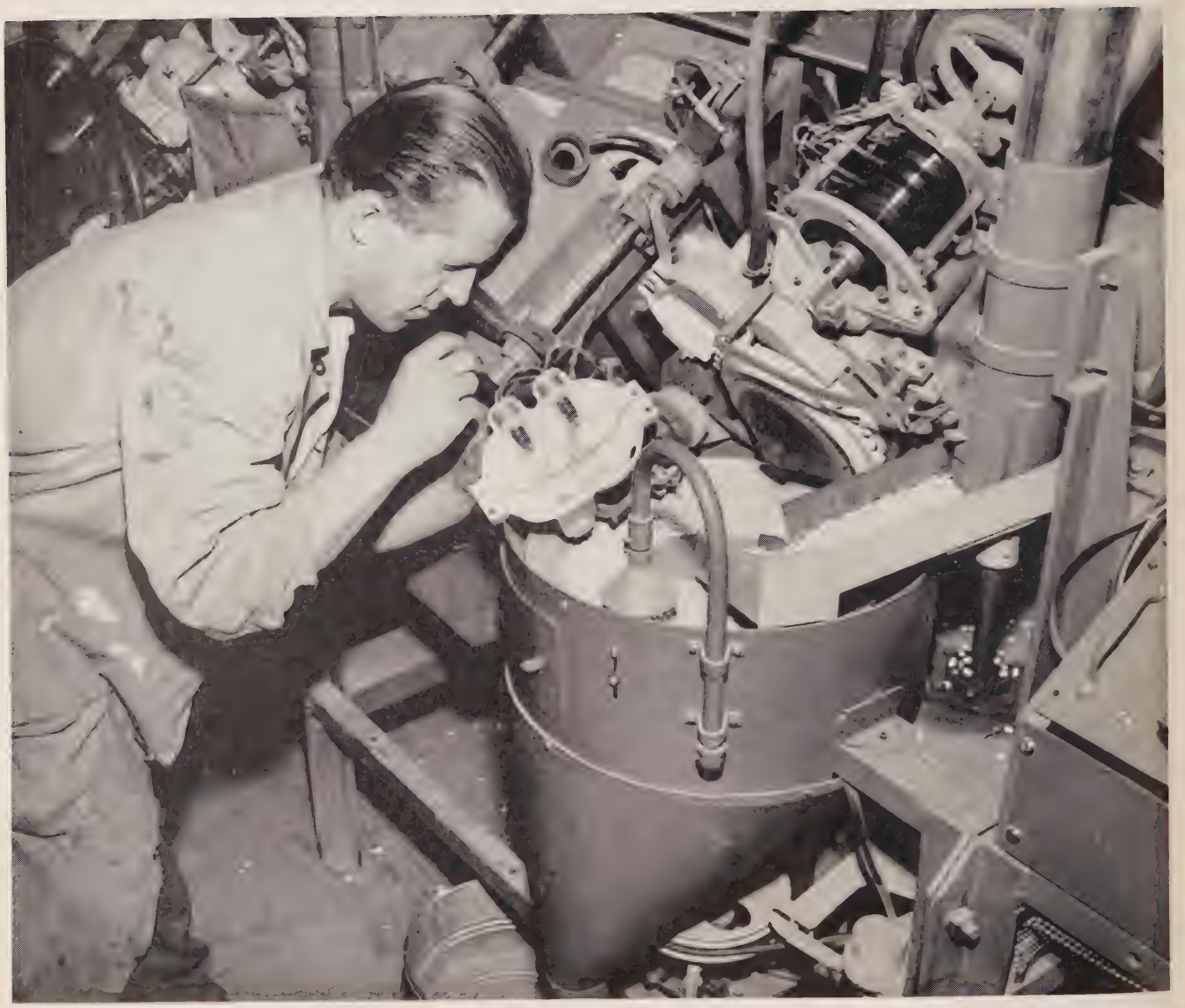
CHIEF ENGINEER H. B. Little, armed with pointer, was noted discussing the system diagram board with, left to right: General Manager H. J. MacTavish, Controller Ford Brand, Chairman Bert Merson, Con. Mrs. Jean Newman and Vice-Chairman John McMechan.

▽



Electric bean sorter means extra cash
in the pockets of Ontario farmers

BEANS TALK



MORE than 75 of these electronic bean sorters are in operation at the London plant. Each machine can color-sort 200,000 beans an hour.



PARTNERSHIP between Hydro and the thriving co-operative enterprise is emphasized by this transformer installation and the large bean silos.

MONEY

By HORACE BROWN

An old-time vaudeville routine went something like this: the telephone rang; the comedian picked it up and listened for a moment; then he began to talk.

"Oh, all right, if you want me to. That's good . . . No, that's bad . . . That's good . . .That's good . . . No, that's bad . . . Good . . . Good . . . Good . . . No, that's bad . . . Okay, thanks for calling."

The comedian then hung up. His partner, eyeing him quizzically, asked, "Who was that?"

"That was my mother," the comedian answered. "She was sorting beans, and wanted me to help her pick out the good from the bad."

Sorting good beans from bad, picking out their color and grade, is done even more magically by the electric-eye bean sorter at the plant of Ontario Bean Growers' Marketing Board and Ontario Bean Growers Limited, on Trafalgar Street, London, Ont. This ingenious electric "brain" is the nerve centre of the vast and thriving co-operative enterprise, controlled by the Ontario Bean Growers' Marketing Board, founded in 1942, and operating under the Ontario Farm Products Marketing Act. The growers are located in several sections of southwestern Ontario, sending their bean crops from Kent, Elgin, Middlesex, Lambton, and Perth Counties.

Ninety-five per cent of the Canada Eastern Pea Bean (Navy Bean) crop is produced in southwestern Ontario, where it provides additional revenue for 8,000 growers. Some 7,000 of these are active each year, the rest dropping out for reasons of crop rotation, weather, and so on.

The average annual yield is one-and-a-quarter million bushels, of which some one million bushels are destined for Canadian consumption. The canners take some 60 per cent of the Canadian total. The Ontario Bean Growers plant buys directly from a portion of the growers, and does custom work for 17 dealers located at Blenheim, Chatham, Hensall, Northwood, Muirkirk, Highgate, Parkhill, St. Thomas, London, Rodney, Kent Bridge, and West Lorne.

Latterly, the plant has been packaging beans in cellophane for retail sale, as merchandising is gaining growing popularity. Large customers, naturally, are lumber camps and the armed forces, which will be news neither to lumberjacks nor to veterans. The Board also exports to the United States, United Kingdom, and Europe.

The Ontario Bean Growers' Marketing Board and Ontario Bean Growers Limited built the London plant three years ago at a cost of some $350,000.

Operate 14 Silos

Employing an average of 12 to 15 men, the huge plant has six silos, 15 feet in circumference and 60 feet high, and eight silos, 12 feet in circumference and 30 feet high, with a private siding to facilitate shipments.

Secretary Treasurer R. E. McPherson, is in charge of the organization. Mr. McPherson is a former supervisor of the wartime labor camps for internees, but he insists that this occupation had no connection with his predilection for beans. He is justifiably proud of the fact that the organization is self-sustaining.

Mr. McPherson points out that the entire operation of the plant depends upon the electric-eye bean sorter, and this intricate machine in turn depends upon electricity. A unique feature of the plant is that the electrical machines operate at frequencies ranging from 120 to 400 cycles. Generators to convert power to these cycles are major items of plant equipment.

Presiding over the electric bean sorter is John V. Lapatauskas, who graduated as an electrical engineer in his native Lithuania, and supervised installation of the complicated machines. Mr. Lapatauskas explains that the bean-sorting machine is fully automatic. It is designed to sort beans on the principle of light reflectivity response on a photo-electric tube in comparison with the reflectivity of a selected standard color.

Beans to be sorted are fed overhead to the machine by means of a vertical pipe terminating in the feed

(Continued on page 12)

chute. Once in the chute, the beans proceed slowly down its stepped surface by a sideways agitating motion that finally drops them into the selection bowl at stated intervals. The machine can sort for color, 62 beans a second, or some 200,000 an hour, and there are over 75 such machines, 28 of which are of a newer type operating twice as rapidly as the old method of electric-eye sorting.

Agitator Latch

The flow of beans into the sorting bowl is controlled by an agitator latch, which causes the chute to move on a signal from a photo tube located below the bowl. Light shinning from a lamp located over the bowl is directed upon a circular path of holes located within the bowl. When the number of beans within the bowl is insufficient to block the light from passing through the holes to the photo tube beneath, the latch operates, agitating the chute until sufficient beans have been fed into the bowl to block the light path. This automatically shuts off the agitating action and stops the flow of beans.

The sorting bowl itself is an amazing "gadget." As it rotates electrically, it develops sufficient centrifugal force to cause the beans to overcome gravity, and climb the curved surface of the bowl towards the outer edge. The drum, which lifts the beans from the bowl, carries them through the lamp housing, and releases them over the outlet chute, is so positioned that its plane of travel is at right angles to the periphery surface of the bowl.

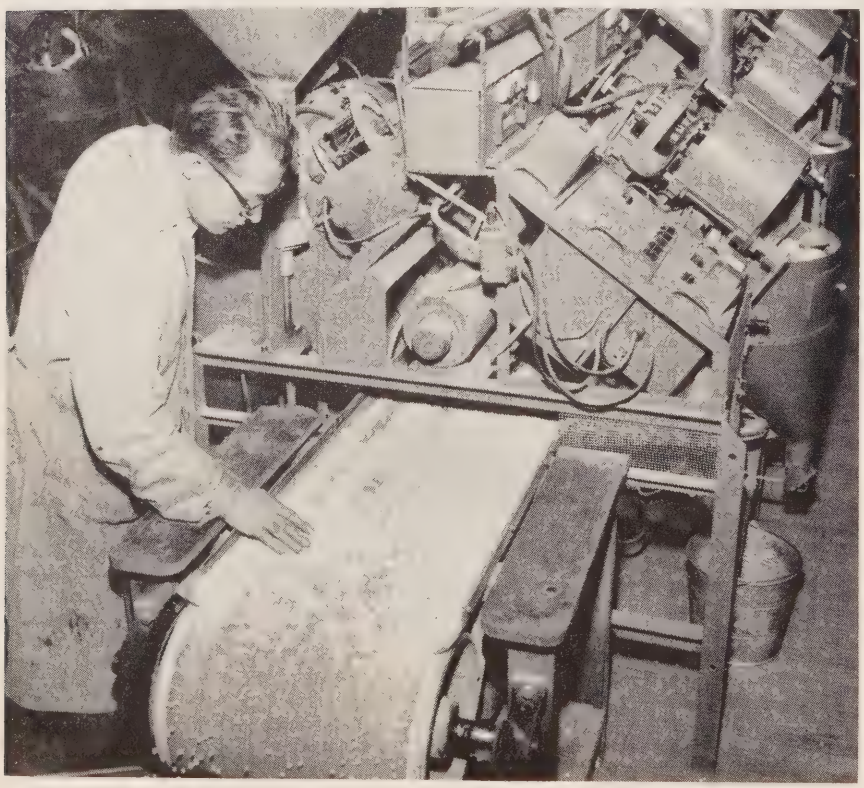
Viewing Chamber

Spaced around the edge of the drum are vacuum orifices (ferrules), which pick up the beans from the bowl. Actually, the drum travels slightly faster than the beans revolving on the periphery of the bowl. At the point of closest approach, the ferrules lift the beans from the bowl, holding them fast by vacuum suction, as they travel upwards and around into the lamp housing. The lamp housing provides a uniformly-lighted "viewing chamber," where the beans may be examined by the photo-electric cell.

The trick, of course, in the whole complicated process, which takes far longer to describe than it does to happen, lies in the ability of the photo tubes to decide whether *more* or *less* light is reflected from a bean than from the selected background against which the bean is viewed, i.e., a way of telling the color of the bean.

This "signal" is brought up by an amplifying system, consisting of several radio tubes. Since the bean is viewed from opposite sides, but not at the same time, and the ejecting device operates after the bean leaves the lamp housing, there must be a means of storing "decision." This storing is accomplished by a device called a "timer," which acts as a receiver for the photo-tube decision, holding this until the bean is in a position where it may be rejected by the machine as not meeting the important color standards required for the plant's products. The ejection trip circuit, when actuated by a stored decision released from the timer, fires a thyratron (a special tube), which, in turn, operates the ejector. Rejected beans fall into a bucket, and those accepted by the machine continue on down a conveyor belt on their way to the eventual market.

At first glance, the uninitiated may see in this electric bean sorter a device rivalling a Rube Goldberg cartoon. After studying the machine for a while, it is readily seen that it displays a wizardry similar to the beans in "Jack and the Beanstalk," thus constituting an application of electrical principles to a fast-growing industry that makes beans talk money to the growers of southern Ontario. ■



◁ READY for packing, the beans receive a final check from a plant employee as they travel on a conveyor belt from one of the electronic sorters to the shipping department.

Township Youngsters Now Learn their Three R's In

Matilda's Red Schoolhouse

THE handsome four-room Stampville Public School, first of several to be built by Ontario Hydro in connection with the St. Lawrence Power Project rehabilitation program, was officially opened during ceremonies held recently in the new schoolhouse near Iroquois in Matilda Township.

Members of the Matilda Township School Area Board together with several senior officials of Ontario Hydro toured the new building, and later officiated at the opening ceremonies. The school, opened for classes in September last year, replaces five smaller one-room schools in Matilda Township.

Lt.-Col. A. A. Kennedy, Ontario Hydro Commissioner, in an address to the audience of some 75 parents, teachers and township officials, said Hydro, in passing on Stampville School to the people of the district, felt it was making a contribution to a "very proud tradition."

"For it was here," Col. Kennedy continued, "that the first regular school in Dundas County, and probably in all eastern Canada, was established in 1788—just four years after the arrival of the first United Empire Loyalists."

The new brick building, containing wash rooms, teachers' quarters and a board room, in addition to the four class rooms, features tiled floors, moveable desks and an electrically-retractable wall, which allows two of the rooms to be joined for large classes or meetings. The principal is Mrs. Blanche McAslin, who has had long teaching experience in Matilda Township schools.

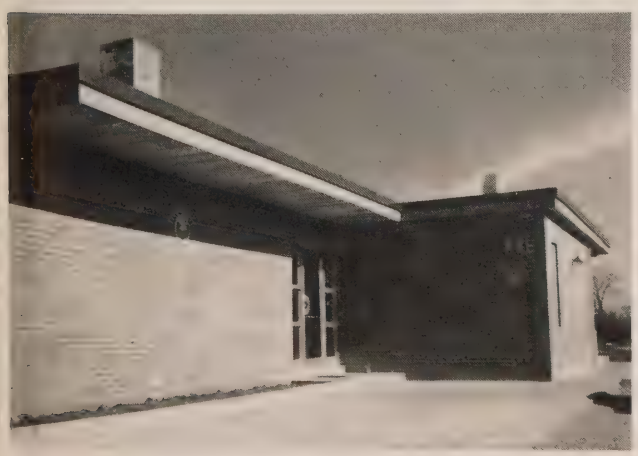
Members of the Matilda Township Area Board in attendance were: Oliver Smyth, Chairman; Andy Cooper, Harold E. Boyd, Kenneth Thorpe and Pringle Murphy. Others attending were W. J. Stewart, district school inspector, and J. Orval Seeley, Reeve of Matilda Township.

Quoting from a history of Dundas County, Col. Kennedy gave a description of one of the early schools, probably S.S. No. 8 Matilda, as it appeared sometime around 1840.

"It was 18 feet square, built of dressed logs, rather neatly dovetailed at the corners, and the interstices between the logs chinked and plastered. The ceiling was slightly more than six feet above the floor."

Comparing these primitive educational facilities with those of today, Col. Kennedy stated his belief that it was "the tempering of the local character in the fiery crucible of hard living which has since accounted for this part of the province producing so many eminent and capable Canadians."

"I have no doubt," Col. Kennedy said, "that many of the children now occupying desks in the four class rooms of this school will one day go on to adorn their chosen professions." —*by Gary Smith.*



COMBINING modern design with the most up-to-date facilities for teachers and students, the new Stampville Public School, northeast of Iroquois, is a single-storey, red brick structure.



FOUR of the teachers — left to right: Mrs. Blanche McAslin, Principal; Mrs. Olive Wallace, Mrs. Muriel Robertson and Mrs. Violet Robertson examine the school's veteran record player.

ELECTRONICS OF

BY ROBERT H. TANNER*

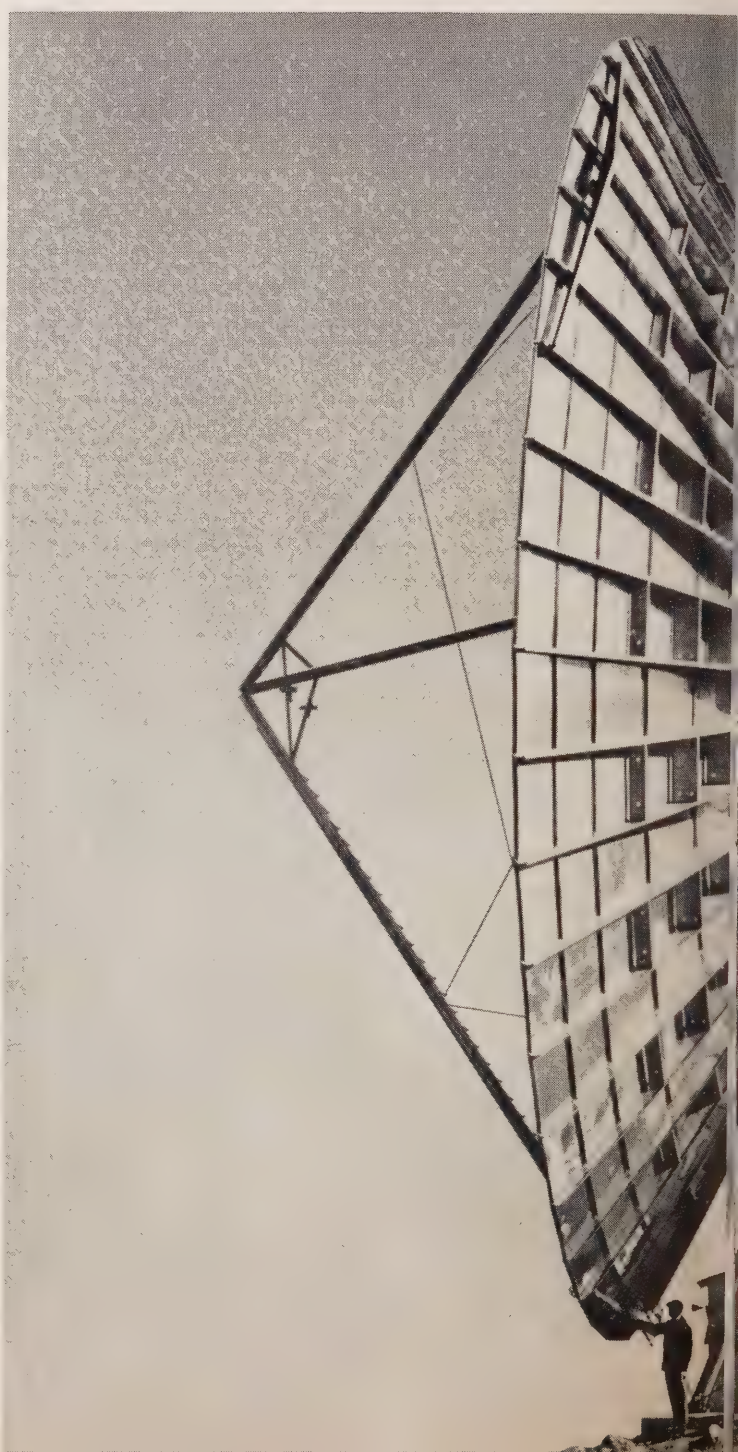
WHAT is now known as electronics may be said to have begun when Thomas Alva Edison first noticed the blackening on the glass of his electric light bulbs!

This effect was later investigated and put to use by Sir Ambrose Fleming, in his diode or two electrode vacuum tube. Then came Lee de Forest, with his introduction of a third electrode, the production of the triode, which made it possible for him to amplify electric signals.

On this slim basis has grown our present electronic world, which has given us radio, television, long distance telephone, radar and a list of wonders, which—except perhaps in the pages of science fiction—were unimaginable half a century ago.

Until a few years ago, the word electronics was used to define the art and science of devices utilizing the flow of electrons in vacuum tubes. The definition has now, however, had to be expanded to include such "solid state" devices as the sensational transistor—which was developed by the Bell Telephone Laboratories shortly after the end of World War II. This device is in fact a direct descendant of the crystal detector used in earlier radio sets, which, with the aid of a second cat's whisker, has been made to amplify.

With the main stem of electronics and the new branch called stereotronics growing together, intertwin-



*Mr. Tanner is Assistant Superintendent, Development Engineering, Northern Electric Company Limited, Belleville, Ont.



WITH COMPACTNESS as one of its chief advantages, the transistor is a direct descendant of the crystal detector used in earlier radio sets.

TOMORROW



"SCATTER" transmission, extending the range of very short waves, requires huge antennae.

ing and interdependent, we are faced with many startling possibilities; new vistas are opening up, and when an engineer can take time off to gaze into a crystal ball, there is no end to the panorama of visions which will emerge.

Firstly, in the world of business, commerce and industry, he can foresee factories in which the machines are controlled, not by human hands, but by punched cards, or by paper or plastic tape, and yet turning out parts of considerable complexity at high speed; factories in which the assembly of these parts into units and in the case of electrical equipment, the interwiring of the components is carried out automatically, followed by an automatic testing procedure to check for correct functioning. In the office, much of the routine work of the accounting department will have been taken over by computing machines, with fabulous electronic memories, replacing the bulky ledgers and journals of today, and capable of printing out at short notice the various lists, schedules and reports which management needs for efficient control.

Payroll Computers

These same machines would periodically feed out some of their stored information into the payroll computers which would, again without human intervention, type out the employees' cheques and in all probability, punch the same information into them in the form of coded holes, as is already done in the case of family allowance cheques with which many of us are familiar.

It will be interesting to trace the path of two of these pay cheques a little farther. The first belongs to a careful young bachelor, who, on his way home, stops at a convenient drive-in location, pulls an identity plate machine. A fraction of a second later, a door covering a slot will open, and into this he pushes his cheque. The machine reads his bank, branch and account number from his identity plate, makes the correct connections, and credits the amount read from the punchings on his cheque to his account as stored on the master computing machine at his bank. At the same time, a similar process debits the account of his employer.

Our second cheque is that of a married man, who naturally, hands it over to his wife as soon as he gets home. When she goes shopping the following day at the supermarket, she does one of several things. She may hand it to the cashier and ask for cash, in which case the cash register will automatically deduct the cost of her purchases and indicate the difference. Or she may hand the cheque and identity plate to the cashier, for the balance to be credited automatically as before to her bank account. As a third alternative, she can ask the girl to ring up on

(Continued on page 16)



A MUSICAL tone will replace the familiar ring in the telephones of the future.

the register a cash amount to be given to her, while the balance of the cheque, less purchases and the cash withdrawal, is automatically banked.

Some of this may sound fantastic, but it is already technically possible, and could be put into effect in the immediate future if the use of such a system could be economically justified. What is much more likely to happen is that various units will be installed one by one as the need arises, the experience thus gained contributing to a gradual lowering of costs, in the same way in which cars, radios and now television sets have become so universal.

Two-way Cable

The field of communications is one in which electronics has played an increasingly important part, and there is every indication that this trend will continue. Only a few years ago, experts would have declared a trans-Atlantic telephone cable an impossibility, yet two legs have already been laid, and speech has been successfully transmitted in both directions.

Laying of the second cable completes the two-way circuit, each direction of which employs over 50 small amplifiers built into the cable itself. Nation-wide dialling of long distance telephone calls is on its way, to be followed by electronic switching, which will greatly speed up the routing of calls all over the country. One interesting aspect of this development is that it may well sound the death knell of the familiar telephone bell, which will be replaced by a musical tone requiring much less power and yet more readily audible.

Another established institution, which seems to be headed for oblivion, is the rural party line, doomed to be replaced by a miniature transistorized carrier system which will allow numerous conversations over the same pair of wires, and will even provide selective ringing so that only the wanted party is called. One particularly fascinating aspect of a trial installation of this equipment is that the power to operate it is drawn from the sun. This is done by means of the Bell Laboratories' remarkable solar battery, mounted on the top of a telephone pole, and connected to charge an ordinary storage battery which continues to run the system during the night. In the early days of radio, government authorities tossed the short-waves, for which they could see no practical use, to the amateurs, the "hams," to play around in. They were somewhat chagrined when the hams proved that these were the frequencies to use for long distance transmission.

Reliable Communication

History has recently repeated itself with the discovery that the ultra high frequencies, once thought to be restricted to line of sight operation, can now be transmitted over the horizon by what is called "scatter propagation" to give reliable communication. This new technique opens up new possibilities of economically practical telephone circuits to Canada's under-populated north country as well as the intriguing vista of intercontinental television relays. A few years ago, it seemed miraculous when we saw pictures of Queen Elizabeth's coronation the same day. The next coronation we may be able to witness in full color, at the same instant.

While we are speaking of television, let us return for a moment to the factory, where the use of industrial or closed circuit TV has already begun, and is growing day by day. In general, systems are used to observe processes, which, for various reasons, cannot be watched directly, to enable one man to keep an eye on several processes simultaneously, or to watch processes or activities without being seen. In commerce, banks and trust companies are using television to facilitate checking signatures and other documents, while railroads have installed systems at large freight switching yards to check the car numbers making up a train. Schools, hotels, large stores, hospitals and police stations all provide other possibilities for this very promising development.

Changes in the Kitchen

Business, commerce and industry are all going to feel the impact of electronic developments during the next quarter of a century, and so are our leisure life and home surroundings. Even in the kitchen, we can see the introduction on a very wide scale of radio frequency ranges capable of cooking meals in a fraction of the present normal time, partly because nearly all the energy is expended in heating the food, and not the oven, the air, the pan and even the room. Electronic refrigeration, with no moving parts, is something which has been achieved, but not yet developed to a commercial possibility.

Home lighting fixtures are also due for a very radical change, to be replaced by large luminescent panels, perhaps covering the whole ceiling, flowing with a cold and almost mysterious light at the touch of a switch. A further development would be the provision of a "luxostat," to coin a new word, which will maintain the light in a room at any required brilliance regardless of external conditions, in the same way that a thermostat keeps our home at a constant temperature.

Quite apart from the more or less imminent introduction of color, the home television set may soon take on a radically different appearance, with the screen hanging on the wall like a picture, and similar extension screens in other rooms of the house. By this time, the TV, radio and phonograph installations will probably have been amalgamated into a single home entertainment system, with the controls conveniently arranged beside the most comfortable chair, and the screen and loudspeaker located on the other side of the room. Under these luxurious circumstances the worker of 1980 may become reconciled to the additional hours of leisure imposed on him by the 20 or 30-hour week!

It is even questionable whether the music he listens to will still be the direct product of human hands and voices. An electronic music synthesizer has already been developed, which is claimed to have produced records indistinguishable from those of famous artists and orchestras. As far as I know, no one has yet constructed a televised image synthesizer capable of producing, from electronic pulses and waveforms, a picture of, let us say, Marilyn Monroe; there seems to be no theoretical reason why they could not.

Driverless Cars

Taking one last look into the crystal ball at the roads and airways of the future, one which will not, perhaps, come within the next 25 years, at first sight the cars speeding along the four, six and eight-lane highways do not appear too different from those we are familiar with today, until we look inside and notice that there is no driver.

Instead the desired destination and average speed are set up on the electronic controller, which then locks into radio or induction guide paths along the lanes of the road. Radar devices sense the presence of other vehicles, and determine when passing is necessary and possible, while the passengers relax and enjoy the scenery or a game of bridge. Electronic eyes interpret the traffic signals, and react to their indications and not a horn is heard! Trucks proceed entirely unoccupied from point to point and never exceed their speed limit. Meanwhile in the air, similar pilotless planes, helicopters and rockets deal with the problem of long distance transportation of men and materials.

Here are a few of the possibilities and probabilities of the electronic age, of the second half of the twentieth century. While some of them may appear to be just dreams and fantasies, it will be as well to think back for a moment to the world of 1931, when radio was in its infancy, television a laboratory toy, radar unknown and calculating machines were operated by turning large cranks.

Or go back still farther to 1906 when even the automobile was a source of wonder on the streets, and it was less than three years since the Wright brothers had made their first motor-driven flight. We came a long way in the first half-century, and there are indications that we'll be going still farther in the second.

Reproduced through the courtesy of the "Northern Circuit"). ■



PANELS no thicker than window glass line this room, providing light from man's most promising source — electroluminescence. Situated in a Pittsburgh laboratory, it is reputed to be the first room with walls and ceilings of light.

Handsome new headquarters of the Sudbury Hydro Commission honors civic contribution of J. D. McInnis, long-service commissioner

THE HOUSE THAT JOHN

At the entrance to a handsome new building in the prosperous City of Sudbury there is a plaque bearing the following inscription:

"This building officially opened and dedicated April 3, 1957, as the new office building of the Sudbury Hydro-Electric Commission, symbolizing the spirit of progress of Sudbury's people, and honoring, in an enduring manner, the outstanding public service of John David McInnis, a member of the Commission from 1936 to 1956, whose chairmanship for a period of 15 years was marked by an era of unparalleled progress and achievement."

The plaque tells the story behind the impressive ceremonies held on this occasion to mark an important milestone in the history of the local commission, and to pay tribute to the man whose foresight and perseverance had been largely instrumental in its attainment.

In the words of Msgr. J. C. Humphrey, Vicar-General of the Roman Catholic diocese of Sault Ste. Marie, who dedicated the building, "It was not by chance that the sun should shine so brilliantly on this occasion" and the spacious, glass enclosed foyer did little to exclude this welcome visitor as the large gathering of past and present members of the Sudbury Commission, civic officials as well as municipal and Ontario Hydro representatives gathered to witness the official opening. W. Ross Strike, Q.C., Hydro's First Vice-Chairman, officiated jointly with Mr. McInnis and Mr. Justice Leo A. Landreville, Supreme Court of Ontario, at the ribbon-cutting ceremonies, while platform guests included Ontario Hydro Commissioners D. P. Cliff, Secretary-Treasurer, O.M.E.A., and Lt.-Col. A. A. Kennedy, President, Georgian Bay District, O.M.E.A.

In a brief address before declaring the building officially open, Mr. Strike said that it had been "the dream of a good many people for a good many years," and he recalled previous visits to the Nickel City when Mr. McInnis and R. H. Martindale, Manager of the Sudbury utility for more than 50 years, "had never failed to espouse the cause which today has become a handsome reality." The speaker predicted that the new office and service centre would provide inspiration for the staff and be a source of pride to customers, visitors and to the community in general. He said "the building will demonstrate the strength and stability of the Sudbury Commission's administration."

Outstanding Growth

Mr. Strike then traced the "outstanding growth" which had necessitated the new facilities. He pointed out that local power demands had increased from 3,613 kilowatts to more than 25,000 kilowatts since the first Sudbury Commission took office in January, 1936. During the same period the number of customers served by the Sudbury utility had risen from 5,113 to more than 15,000. The speaker expressed the view that such an organization could only function at peak efficiency when provided with adequate accommodation and the best of equipment. He said that the new building went beyond these basic considerations, and that the departure from the conventional in architecture and provision for future

(Continued on page 20)

Since the preparation of this report, Ontario Hydro News has learned with regret of the recent passing of Mr. McInnis at Sudbury. In his 69th year, Mr. McInnis was ill for several days with a chest condition, being removed to St. Joseph's Hospital where he died on May 13. He is survived by his wife, two sons, five grandchildren, and a brother and sister.

WHILE the emphasis was on the utilitarian in planning the new Sudbury Hydro building, this was achieved without sacrificing the appearance of the modern civic structure.



BUILT

JOHN McINNIS, a Sudbury Hydro Commissioner for 24 years, realized a long-cherished ambition when he cut the ribbon to formally open the new building. Sharing the honors with him were W. Ross Strike, Hydro's First Vice-Chairman (left) and Mr. Justice L. A. Landreville.



expansion indicated foresight and imagination on the part of the local commissioners. Speaking on behalf of Ontario Hydro, Mr. Strike said that the potential of the entire Sudbury area was fully appreciated, and that everything possible would be done to provide an ample supply of power.

The master of ceremonies at the official opening was E. C. Dash, Chairman of the Sudbury H.E.C. Mr. Dash described the comprehensive and continuing program of expansion and improvement, which had taken place since the first commission was formed. He paid tribute to Mr. McInnis whose foresight in setting special funds aside each year had made it possible to complete the new building without debt, and with no increase in the rates, which, he said, were among the lowest in the province. N. H. MacKinnon, Secretary-Manager, expressed a similar sentiment when he said "this building stands as a monument in concrete, steel and glass to men like Mr. Martindale and Mr. McInnis, and members of the staff are grateful to the commissioners who recognized that good facilities and good equipment were essential for good service."

Appropriate messages were also delivered by Gordon Fuller, President, O.M.E.A., Mayor Joseph Fabbro, and Mr. McInnis. The invocation was pronounced by Rev. James S. Roe, D.D., President of the Sudbury Ministerial Association. Following the official opening ceremony, members of the utility staff acted as guides for the guests during a tour of the new civic structure. All guests were presented with a copy of the special Golden Jubilee Edition of *Ontario Hydro News* as a souvenir.



△

THIS young Sudbury Hydro customer seems to approve of the new premises. The new facilities will permit the local utility to keep pace with the rapidly-expanding customer requirements.



△

SPACE is provided in the building for the Waterworks Department under the management of Rex Martindale. Members of the Hydro clerical staff are shown at work in the main office.

Contemporary Architecture

While the emphasis was placed on the utilitarian in designing the new two-storey Hydro centre, the 75x60-foot building also represents a very pleasing form of contemporary architecture. Light curtain walls, consisting of extruded aluminum framing members with an infill of blue porcelain enamel panels and wide expanses of glass, make up three sides of the building, while the fourth is of brick construction. The street-level, glass-enclosed entrance is in keeping with the "modern age" theme of the building, which is expressed throughout the interior by the judicious use of fine woods, acoustic materials and carpeting — all brought into harmony through a happy selection of wall and floor colors.

Wide stairways lead from the lobby up to the main office area and to the lower floor where a lunch room and other staff facilities have been provided for the line crews. This floor is shared with the city's Waterworks Department. On the

second floor, the executive offices and the sound-proof billing room are separated from the general office by a wall panelled in oiled walnut and this attractive wood is also featured in the offices of the manager and the chief accountant. The service counter is of plastic in a bleached mahogany wood grain finish. Woven, matchstick drapes control sunlight around the three walls. A vault on the west side of the building extends from the basement to the top floor, and provision has been made for an elevator should an additional floor be required in the future.

The top floor of the building contains the offices of the line and meter foremen, a drafting room, staff lunchroom, a meter operations department, and a tastefully-appointed board room with conference table and chairs of contemporary design in walnut. The entire building is completely air-conditioned. Representing a striking contrast with the former modest quarters of the Sudbury Commission, the new headquarters building provides adequate space for administration of Sudbury's electrical system, which now has 86 members on its payroll, and boasts such important facilities as three substations, a modern warehouse, garage and meter repair depot.

Following the inspection of the building the guests adjourned to the Nickel Range Hotel where a testimonial dinner was held in honor of Mr. McInnis. The principal speaker on this occasion was Mr. Justice Landreville, who, prior to his appointment to the Bench of the Supreme Court of Ontario, had served for eight years on the Sudbury Commission, two of them as chairman. In paying tribute to Mr. McInnis, Mr. Justice Landreville, a former Mayor of Sudbury, extolled the virtues of public service, declaring that "We have in our municipalities too many residents and not enough citizens . . . we hear too much of the rights of the individuals and not enough of his duties and obligations." He referred to the ancient Greek civilization where only a select few had the privilege of being called citizen, and he said "it is this type of man we are honoring today." He then presented the former commissioner with a desk-set replica of the plaque, which has been placed in the new utilities building.

In reply, Mr. McInnis said he hoped that the new Hydro building would influence the design of similar developments, which might be planned for the city in the future. He acknowledged the invaluable assistance he had received from his fellow commissioners over the years. He made special mention of Mr. Martindale in whose honor Ontario Hydro had named its important transformer station near Sudbury. The facilities at this station have permitted transfers of power between the Southern Ontario System and the Northeastern Division since 1950. Mr. McInnis also received words of congratulations from many of the head table guests including, Mr. Strike, Lt.-Col. A. A. Kennedy and Mr. Cliff, on behalf of Ontario Hydro and the O.M.E.A., A. E. Waller, Vice-Chairman of the Sudbury Commission; W. R. Mathieson, Secretary-Treasurer, A.M.E.U.; Mr. Martindale, and H. R. Graham, Manager of Hydro's Northeastern Region. *—by Don Wright.*

AFTER his tour of the new headquarters, W. Ross Strike dropped into the handsome board room to congratulate the Sudbury officials on their achievement. From the left are: Mayor Joseph Fabbro, Chairman E. C. Dash, Mr. Strike, Secretary-Manager N. H. MacKinnon, A. E. Waller, Vice-Chairman, Mr. McInnis.



How Load Growth Studies Can Assist Management

BY HARRY HYDE*

THERE is a tendency in the electrical utility field to think of load study as primarily an engineering problem and responsibility. This should not be the case. After all an electrical utility is similar to any other business concerned with the sale of its product or service. The utility's product is energy, and all management is vitally concerned with its sales record.

However, unlike most other businesses, a utility can only control to a limited extent the sale of its product, because once the consumer has a service, he determines, at his own convenience, the time and the quantity of its use. Nor can a utility say that "we have just run out of it," or "another shipment will be in tomorrow."

It follows, therefore, that it is one of the prime duties of an electrical utility and its management to be prepared, at all times, to evaluate the customer's requirements.

By studying the trends of the past and the present, it may be possible to arrive at some intelligent conclusions regarding the consumer's future demands. This is generally referred to as load growth study rather than load study, because, in the history of electrical utilities, there has never been a period without growth.



HARRY HYDE

A load growth study can be an instrument for the intelligent forecasting of a community's future power requirements. It can help in assessing, with some degree of accuracy, the capital and operating programs required to meet future needs. It can thus assist management in planning, financing and controlling these programs, and even in determining future personnel requirements.

In the complete evaluation of future requirements, load growth study is not the only instrument to be used. The standard of living, technological developments, the economy of a community, province and nation, current or future credit restrictions and population trends must also be taken into account. This article deals only with load growth studies.

The total load of any utility is made up of components which, broadly speaking, are referred to as industrial, commercial and domestic. The nature of these loads varies with the type of community served; thus the total load of a utility can be made up of different proportions of any of these major components.

Costs Differ

If the community is highly industrialized, then the industrial portion may be the overriding factor in its total demand, or if it is purely residential the load curve will be of an entirely different nature. It follows, therefore, that the cost of supplying the various types of services will differ, depending on the ratio which each one of these bears to the total.

There is a ratio which results in the maximum economy. To some extent this can be compared to the problem facing many Ontario municipalities, which have very little industrial assessment, and must necessarily place a heavy burden of taxation on residential property.

* (Mr. Hyde is Assistant Manager of the Toronto Hydro-Electric System.)

Each one of the major components referred to above can be further broken down into smaller units, and in the case of the domestic load, right down to appliances.

The following paragraphs provide a brief outline of some of the methods used in conducting a load growth study.

Most readers are familiar with the load curve, shown in Figure 1, which shows the peak demand on the Toronto system for the past 20 or 30 years, and the trend of the growth of the total load. The maximum demand for each year is plotted, and the resulting curve shows the general trend, from year to year. This, to a limited extent, projects the possible growth in the future.

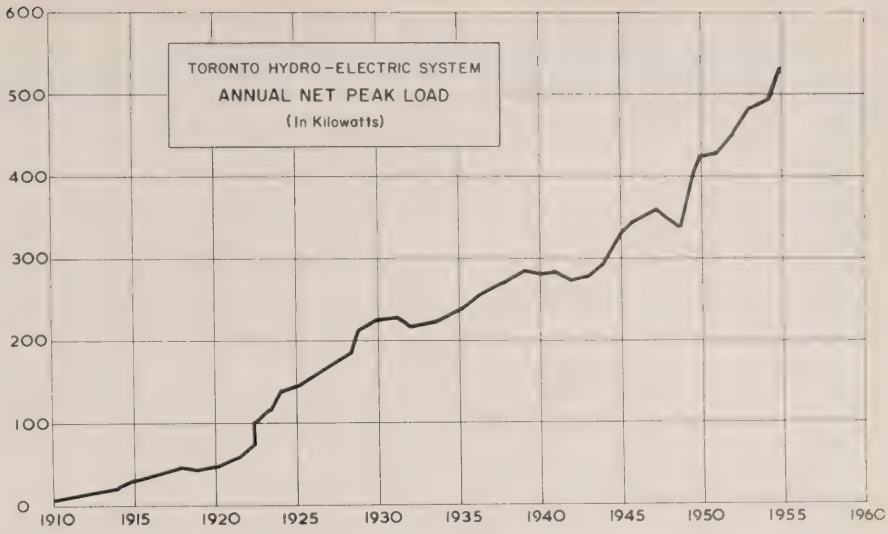


FIGURE 1

However, it does not indicate the relationship which the peak day of the year bears to the peak for the rest of the days in that year. It is possible, for example, for the peak to occur during the morning hours, the evening hours or at night. It could be a summer peak or a winter peak. It could be of relatively short duration, or it could be not much greater than the load for the whole day.

Figure 2 shows the monthly maximum demand of the system and of the low voltage networks in Toronto in the year 1956. These curves point up a development that has taken place in one of the networks, which primarily feeds a number of new large office buildings. Unlike the curve for the system as a whole, this network has its peak in the late summer and early fall. This is due to the effect of large air conditioning installations.

Now this is a very important consideration. In the winter time it is possible to load transformers and other equipment by taking advantage of the cooler ambient temperature, while a greater capacity has to be installed to handle the same load in the summer because of the higher ambient temperature. System-wise this is not as bad as it sounds because, in effect, the system load is generally down in the summer. This load helps to raise the all-round average, and increases the kilowatt-hour consumption without too much additional capacity being required beyond the immediate transformation supplying this particular service.

Reduced Summer Load

It is true that the distribution transformer and possibly the secondary mains have to be increased in size. But, beyond that, the generally reduced load of the summer makes it possible to take on more load of this type without increasing the rest of the plant.

It is obvious that there is a limit to this. If the summer load reaches proportions where it begins to influence the system peak, then the overall system costs will rise.

As a matter of fact some utilities are actually experiencing summer peaks. As an example, Gordon W. Evans, Chairman and President of the Kansas Gas & Electric Co., Wichita, Kan., in a discussion of this question in the January 21, 1957 issue of *Electrical World* said: "Until three years ago the annual load fac-

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1956 PEAK LOAD BY MONTH

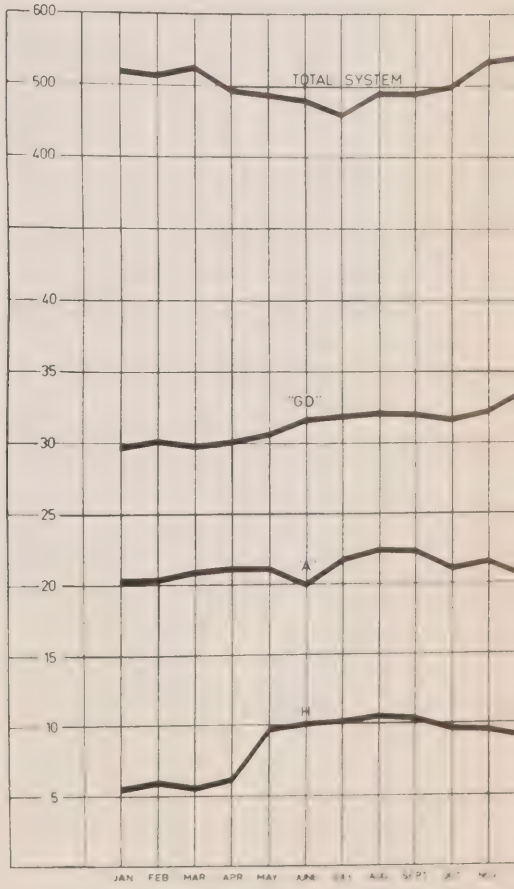


FIGURE 2

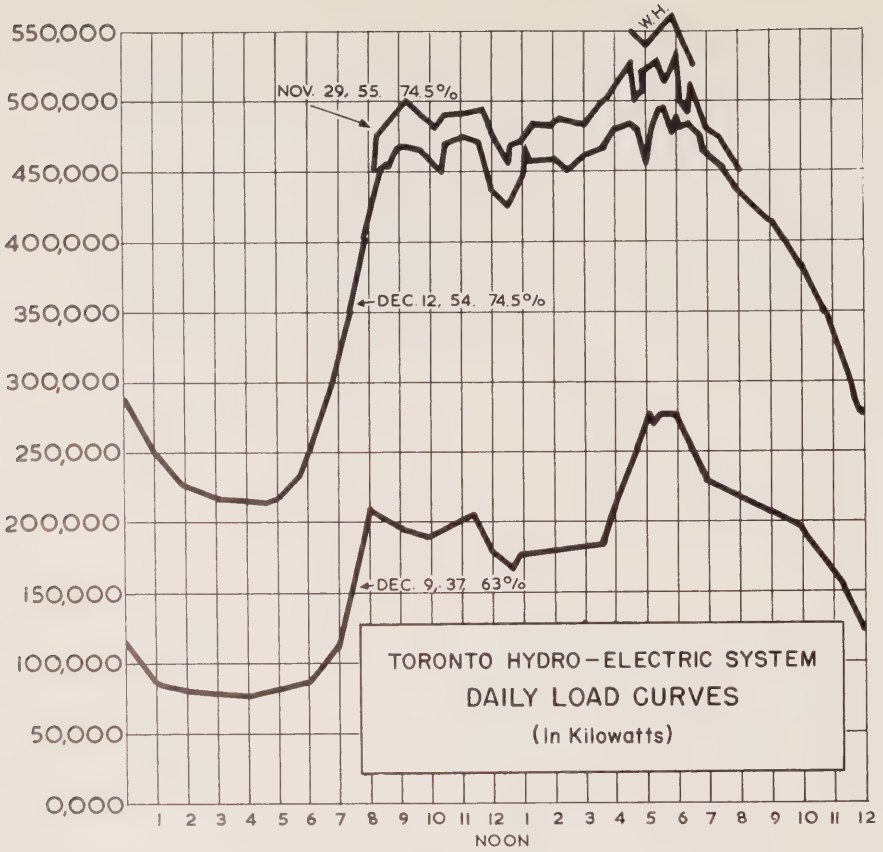


FIGURE 3

tor of Kansas Gas & Electric Co. was excellent. Our load was very well balanced as between winter and summer peaks. The winter peak was slightly ahead of the previous summer peak.

"The year 1953 started a new trend with the summer peak 3,000 kilowatts higher than the winter peak. Then in 1954 the difference was 42,000 kw. or 16 per cent; in 1955 it was 50,000 kw. or 18 per cent, and this year it will be about 80,000 kw. or 25 per cent.

"As our investment in power equipment is about $300 per kw., this means that $24 million in facilities is not being used eight or nine months out of the year. At 12 per cent this is $2,880,000 per year or $240,000 per month for fixed charges (interest, taxes and depreciation)."

Figure 3 shows a daily load curve. The lower one was made up some 20 years ago and shows the relatively high peak around 5.00 p.m., whereas the top curve, taken recently, shows very little peaking during the whole day. The relative load factors of these two curves is 67 per cent and 79 per cent, which means that for the same kilowatt demand, proportionate kilowatthour sales were up almost 18 per cent.

The load factor, which indicates the use of this maximum demand in terms of kwhrs., is very important, because the revenue derived from the capital investment set up to handle the maximum demand is the real index of efficiency. Therefore, even though the maximum demand may grow from year to year, it is just as important that energy consumption also grow, and in fact it is more profitable, if possible, to have a larger growth in energy consumption than in peak demand.

This daily curve is made up of a great variety of services, and it is important to know what portion each type represents in the total. This provides the information respecting the cost of supplying the different types of service. It also helps in recognizing what loads require proportionately lesser or greater amounts of capital investment, and what revenue can be expected of various loads on the basis of that capital investment.

Nor does load factor tell the whole story, because it is possible for the total load to be made up of many small parcels, which will result in as many distribution systems. On the other hand the load may be concentrated in a few large parcels, which will result in fewer distribution systems.

It is possible, as indicated previously, to increase the demand and yet not proportionately the revenue. In other words, if the tendency is to peak sharply, then the load factor is lowered, and the proportionate revenue is reduced because increasing maximum demands invariably mean additional capital expenditure. Therefore, while it is reasonable to expect considerable load growth it does not necessarily mean that proportionate increases in revenue can be anticipated. It is, therefore, very important to make sure that as demand increases, energy consumption must also increase in proportion.

Electric Range Load

For example, in determining the relationship between the electric range load and the total demand on a system, attention is directed to Figure 4. The curve indicates the evening load of the average range in Toronto during 1934.

Figure 5 gives the maximum demand per average range for each month of the year.

Thus it becomes apparent that this chart can be put to excellent use in computing the total evening range load for any given time, simply by multiplying the demand of the average range by the total number of stoves served by the utility.

The resulting figure is necessary in preparing a chart similar to Figure 6, which shows the daily load curve for the Toronto system during 1934. In this chart the total range load curve has been subtracted from the daily load curve. The curve under the "hatch" or shaded portion shows the resulting daily load without electric ranges.

It will be noted that the peak, which has now shifted to the morning, has not come down to the full value of the range load, but only one-third of the total range load. This means that diversity has entered the picture. If this daily load curve were flat during the daylight period as it usually is during summer months, the subtraction of the range load would make appreciably no difference in the peak.

It is not being suggested that there is no cost during these summer months in supplying the range load. The distribution transformer nearest to the consumer's premises must be large enough to supply the full demand and the secondary system. The primary mains must also be designed for the full capacity of the range load. But beyond that point diversity has definitely entered the picture, and made this a very profitable load indeed.

The loss of this type of load or the failure to increase this type of load with increased maximum demands would, therefore, result in the loss to the overall system.

Many examples of this type can be given, but only a thorough load study would indicate what type of appliances should be encouraged and what equipment should be discouraged.

Capacitor Installation

Another factor seldom taken into consideration is the power factor of various loads. Many articles dealing with the tremendous load growth in the southern United States due to air conditioning have been published. Moreover considerable material has been prepared on the use of

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AVERAGE RANGE (in kilowatts) — EVENING LOAD TORONTO, 1934

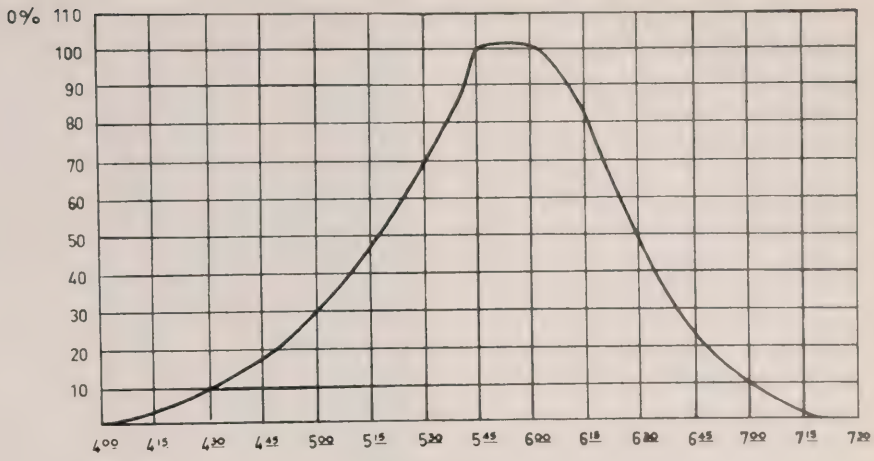


FIGURE 4

MAXIMUM DEMANDS (in kilowatts) PER AVERAGE RANGE BY MONTHS

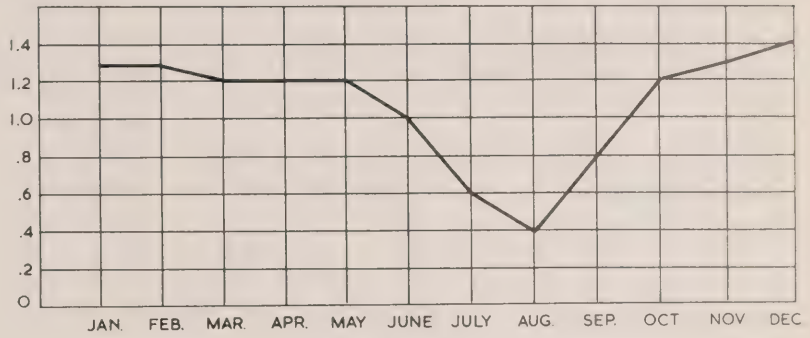


FIGURE 5

DAILY LOAD CURVE SHOWING EFFECT OF DEDUCTING RANGE LOAD (in kilowatts)

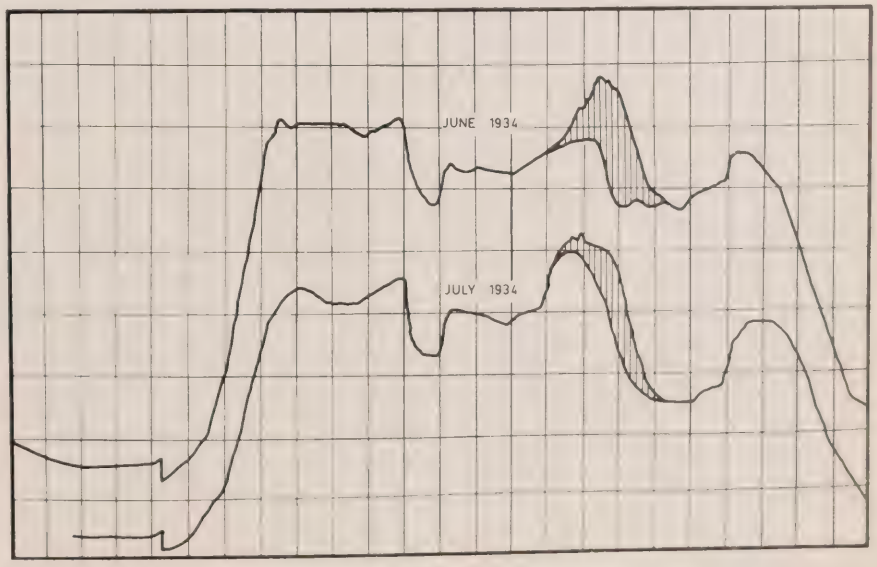
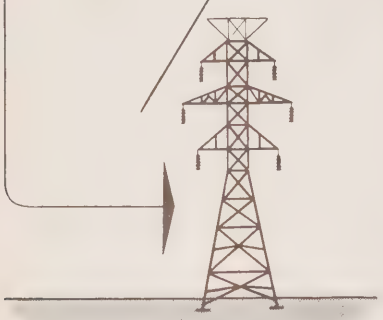


FIGURE 6

ALONG HYDRO LINES





"ELECTRICAL LIVING" AWARD

ST. THOMAS and Elgin County Radio, Television and Appliance Dealers' Association was honored recently with the Ontario Hydro citation for its "significant contribution to the advancement of electrical living during the year." The presentation was made at the convention of the Canadian and Ontario Association of Radio, Television and Appliance Dealers Inc., in Toronto. James A. Blay, Ontario Hydro's Director of Information (left), made the presentation of the plaque for the 1956 achievement to Roy Inch, President of the St. Thomas and Elgin County Association and a director of the provincial group. Looking on are Wilf Hodgins (second from left), Secretary-Manager of the Ontario and Toronto Associations, and John Ireland (right), President of the Ontario Association.

Appointed Toronto's Assistant Manager

Harry Hyde, P.Eng., formerly Assistant Chief Engineer, Toronto Hydro-Electric System, has been appointed Assistant Manager effective April 1 this year. Graduating from the University of Toronto in 1926 with the degree of B.A.Sc. in Electrical Engineering, Mr. Hyde joined Toronto Hydro's Distribution Department in the Standards Section. He was assigned to the development of the low voltage network, and subsequently worked on the 4-kv. network and general distribution engineering. Mr. Hyde served during World War II with the R.C.E. for four and a half years, returning in 1945 to take charge of the Distribution Planning Section. On May 10, 1951, he was appointed Engineer, Distribution Planning and Design, and the following year was appointed Assistant Chief Engineer. Harry J. Chambers, who formerly headed the Station Planning and Design Department, has succeeded Mr. Hyde.

Peterborough Reports Successful Year

Peterborough Utilities Commission recently reported a total operating profit for 1956 of $227,864.50 in its three departments. The electrical section contributed $191,024.45 to the surplus with electrical revenue amounting to $1,647,206.01 and expenses, $1,456,181.56. Total revenue was $2,309,990.20 and expenses were $2,082,125.70 The Peterborough Commission's assets, capital and current, apart from liabilities, were valued at $9,709,293.42 at the end of 1956.

Former Hydro Executive Passes

Secretary-Treasurer of the Ottawa Hydro-Electric Commission for more than 30 years, George E. Pennock died at his Ottawa home on February 25. A resident of Ottawa for 84 years, Mr. Pennock moved to Ottawa when a boy. He joined the Ottawa Hydro staff when a young man and retired in 1936 after more than 30 years' service. Prominent in church and young people's groups, Mr. Pennock is survived by one son and three daughters.

Veteran Commissioner Dies at Kingston



JAMES HARRIS

James Harris, a member of Kingston Public Utilities Commission for 32 years, died on April 19. Chairman of the local P.U.C. in 1953 and 1954, Mr. Harris was a native of Edinburgh, and came to Canada in 1911. He joined the staff of Queen's University and later served in the First World War. An electrical contractor, Mr. Harris had supervised electrical installations in Military District No. 3 from Cornwall to Bowmanville and Peterborough during the Second World War, and was also responsible for the installation of a 70,000,000-volt synchroton at Queen's University. A member of the St. Lawrence Deep Waterway Association and director of the Ontario Electrical Association, Mr. Harris was also active in the Electric Service League of Ontario and the Ontario Municipal Electric Association. He had served on the board of examiners for licences and helped develop the Canadian Electrical Code. He is survived by his widow and a brother.

Elected to Board of Directors

Dr. Richard L. Hearn, former Ontario Hydro Chairman and now Engineering Consultant to the Commission, has been elected to the Board of Directors, Humphreys and Glasgow (Canada) Limited, and also of Canada Wire and Cable Company Limited, Toronto. Dr. Hearn is recognized internationally as one of Canada's most eminent professional engineers. A Director of Atomic Energy of Canada Ltd., Dr. Hearn was also chosen this year to receive the Sir John Kennedy Medal, presented by the Engineering Institute of Canada for outstanding service to Canada in the field of engineering.

NAVIGATION OPENS IN DIVERSION CANAL

Ontario Hydro's new diversion canal associated with the St. Lawrence Power Development was officially opened and given a thorough workout on April 15, marking the opening of the 1957 navigation season. A total of 27 vessels travelled through this mile-long diversion channel, which allows St. Lawrence River shipping to pass the Cornwall dyke construction area.

First vessel to enter the diversion channel, was the "F. V. Massey," an 1895-ton freighter of the Beaconsfield Steamship Lines Ltd. It was followed closely by the "Red River," another cargo vessel of the same company. Navigating the concrete closure structure was a novel experience for crew-members of the ships plying the channel for the first time. The concrete bulkheads are 50 feet apart, and the ships sailed through the structure with several feet to spare on either side.

Plays Important Role

The concrete structure will have two important functions. It will permit passage through the Cornwall dyke until the summer of 1958 when flooding of the power project headpond will take place. It also will permit the completion of Cornwall dyke from old No. 2 Highway to the St. Lawrence powerhouse site. The earthen dyke crosses the former Cornwall Canal used by ships for approximately 100 years.

Building the mile-long diversion canal has been in progress for more than a year and required the removal of nearly 1,500,000 tons of earth. It was completed early in April this year, and will be used during this navigation season and for several months during the 1958 season.

The diversion channel provides a more direct route between Lock 19 at the east end and Lock 20 on the west end. When flooding of the headpond area for power generation occurs, the concrete closure structure will be closed off. This will be accomplished by dropping steel stoplogs into the gate checks to close off the passage of water. Then the structure will be sealed off finally with a concrete bulkhead. ■



"F. V. MASSEY" WAS THE FIRST CARGO VESSEL TO PASS THROUGH THE CLOSURE STRUCTURE.

C. B. C. SCOTT NAMED TO PERSONNEL POST

James S. Duncan, C.M.G., Chairman of Ontario Hydro, has announced the appointment of C. B. C. Scott as Acting Assistant General Manager — Personnel, a vacancy resulting from the recent passing of John Dibblee.

The new Assistant General Manager, who assumed his duties May 1, is responsible for the Employee Relations, Accident Prevention, Medical Services, Collective Relations, and Wage and Salary Administration Divisions of the Personnel Branch.

Mr. Scott's broad knowledge of labor relations has been recognized by appointments to leading positions with both public and industrial organizations. A 1925 graduate of the University of Toronto in Commerce and Finance, he was associated for many years with Massey-Harris-Ferguson Ltd., in the manufacturing, personnel and industrial relations fields.

During World War II, Mr. Scott was a member of the Regional War Labour Board for Ontario, and in 1949 was chosen as the Canadian employer delegate to attend the International Labour Organization Conference at Geneva. He has also served as Chairman of both the National Industrial Relations Committee and the Ontario Division, Labour Relations Committee of the Canadian Manufacturers' Association, Chairman of the Industrial Relations Committee of the Toronto Board of Trade, and President of the Board of Directors of the Central Ontario Industrial Relations Institute.



C. B. C. SCOTT

Outstanding Response To First Large Bond Issue

The overwhelming response to the largest bond issue, amounting to $100 million, ever floated by Ontario Hydro was extremely gratifying, Hydro Chairman James S. Duncan stated recently. Despite reported "tight money" conditions, the issue was oversubscribed in a matter of hours.

The $100 million issue was more than 50 per cent larger than any previous Ontario Hydro bond issue, and was priced to suit the small investor, for whom bonds of $500 were made available. The widespread response was evidenced from coast to coast in the early subscriptions.

"The tremendous number of orders from private Canadian investors and the institutions is a wonderful expression of confidence in Canada's largest electrical utility, in the province and in this country," Mr. Duncan said.

The issue consisted of 5 per cent bonds dated April 1 and priced at par to yield 5 per cent. An investor had his choice of two maturities, either bonds due April 1, 1965, or bonds due April 1, 1977, according to his requirements. Proceeds from the bonds will cover expenditures during the coming extensive summer construction period.

Appoint St. Lawrence Field Project Engineer

Appointment of William L. Fraser as Field Project Engineer for Ontario Hydro's St. Lawrence Power Project has been announced by the Commission's Chief Engineer, Dr. Otto Holden. Mr. Fraser assumed his new duties at Cornwall, Ontario, on May 1, succeeding William H. Hogg, who has left the Commission to accept a senior executive position with The Great Lakes Power Company Ltd., at Sault Ste. Marie, Ontario.

Formerly Project Manager for Ontario Hydro's Sir Adam Beck-Niagara No. 2 development, Mr. Fraser is a well-known Canadian civil engineer. He has had a wide and interesting career in engineering, and has held senior posts with Ontario Hydro. He was Project Manager at Ontario Hydro's Chenaux development on the Ottawa River. Prior to that, during the Second World War, he was on the staff of the Department of National Defence Naval Service and was District Engineer on Works and Buildings along the Atlantic coast.

Former Manager's Wife Passes

Mrs. Nelson Affleck, Lanark, Ontario, mother of Mrs. G. C. Allen, Sarnia, passed away recently in Oshawa in her 85th year. Mrs. Affleck was well known in the Eastern Region for her genial hospitality. Her late husband was Manager of Lanark Public Utilities Commission for many years.

Vandals Cause Lighting Damage

Windsor Utilities Commission officials announced recently that the local taxpayers are paying some $8,000 each year to replace damage to the street lighting system caused by vandalism. Last year, 555 glass globes and hundreds of light bulbs had to be replaced.

COUNCIL NAMES OFFICERS

Roy Demerling, Windsor Utilities Commission, was elected Chairman of the Council of Metermen's Associations of Ontario, at the spring meeting held recently at Ontario Hydro's Head Office. The schedule for the spring program of member associations was drawn up at the meeting, and a list of available papers for presentation was announced, followed by discussion of metering problems. In the photograph below are executive officers for 1957-58 and council members. Seated, left to right, are: Walter R. Percival, F.S.D., Ontario Hydro, Secretary-Treasurer; Mr. Demerling, Chairman; Stan Trodd, Orillia Water, Light and Power Commission, Vice-Chairman; Clarence Labelle, Smiths Falls Hydro-Electric Commission, Past Chairman. Standing from left: Thomas Honan, New Toronto P.U.C.; Norman Lake, Ontario Hydro, Consumer Service; H. Elliott McBroom, Toronto H.E.S.; J. Gordon Steiss, Kitchener P.U.C.; Allan Lawson, Sarnia H.E.C.; Paul Geguire, St. Lawrence Power Co., Stan Upper, Ontario Hydro, F.S.D.; Norman Redsell, Etobicoke H.E.C.; A. Gordon Stacey, Guelph Board of Light and Heat Commissioners; Alfred V. Hammond, Merritton H.E.C.; Wesley Arend, Windsor U.C.; Gerry McClymont, Chatham P.U.C. and Jack Dawson, Dunnville P.U.C.



Hydro Moves To New Location

One of the oldest buildings in Beamsville, Hydro's Rural Operating Area office was recently vacated. The Commission has moved to its new office on Ontario Street, vacating the building that was first used as the post office. Later on, during World War I, it served as the office of the Independent Telephone Company, forerunner of the Bell Telephone Company in the district, and as the office of the local branch of the Canadian Bank of Commerce.

Chief Engineer Addresses London Group

Dr. Otto Holden, Ontario Hydro's Chief Engineer, addressed members of the Commonwealth section of the Royal Society of Arts in London, England, on May 9. Dr. Holden gave a report on the progress of the St. Lawrence Power and Seaway Project, and was well received by a large gathering of Society members. While in Britain, Dr. Holden also conferred with British engineers and inspected major power projects.

Registration Totals 919

Dr. V. S. Wilson, Chairman of the Inter-Association Committee, reported that registration at this year's O.M.E.A.-A.M.E.U. Convention totalled 919 delegates, compared with 874 in 1956; 880 in 1955, and 881 in 1954. Dr. Wilson stated that tentative arrangements had been completed with the Royal York Hotel to hold the 1958 convention March 3, 4 and 5.

A.M.E.U. Announces Technical Conference

W. R. Mathieson, Secretary-Treasurer of the A.M.E.U., has announced that arrangements have been completed to hold the annual A.M.E.U. Summer Technical Conference at Ottawa on June 6-7-8 this year. Headquarters of the conference will be the Chateau Laurier Hotel.

LOAD GROWTH STUDIES

(Continued from page 25)

pole-type capacitor banks to improve line conditions due to low power factor of the air conditioning load. One article recently indicated the installation of one Kilovar of capacitors with every kilowatt of transformer. This appears to be a wrong approach. In a system similar to the Toronto System, where considerable resistance load such as ranges, water heaters, etc. predominates, the use of capacitors, to this extent, is not necessary.

It would seem, therefore, that the cost of capacitor installation could be more advantageously employed in lowering rates to promote range and water heater loads, etc., or any other load that would improve system power factor.

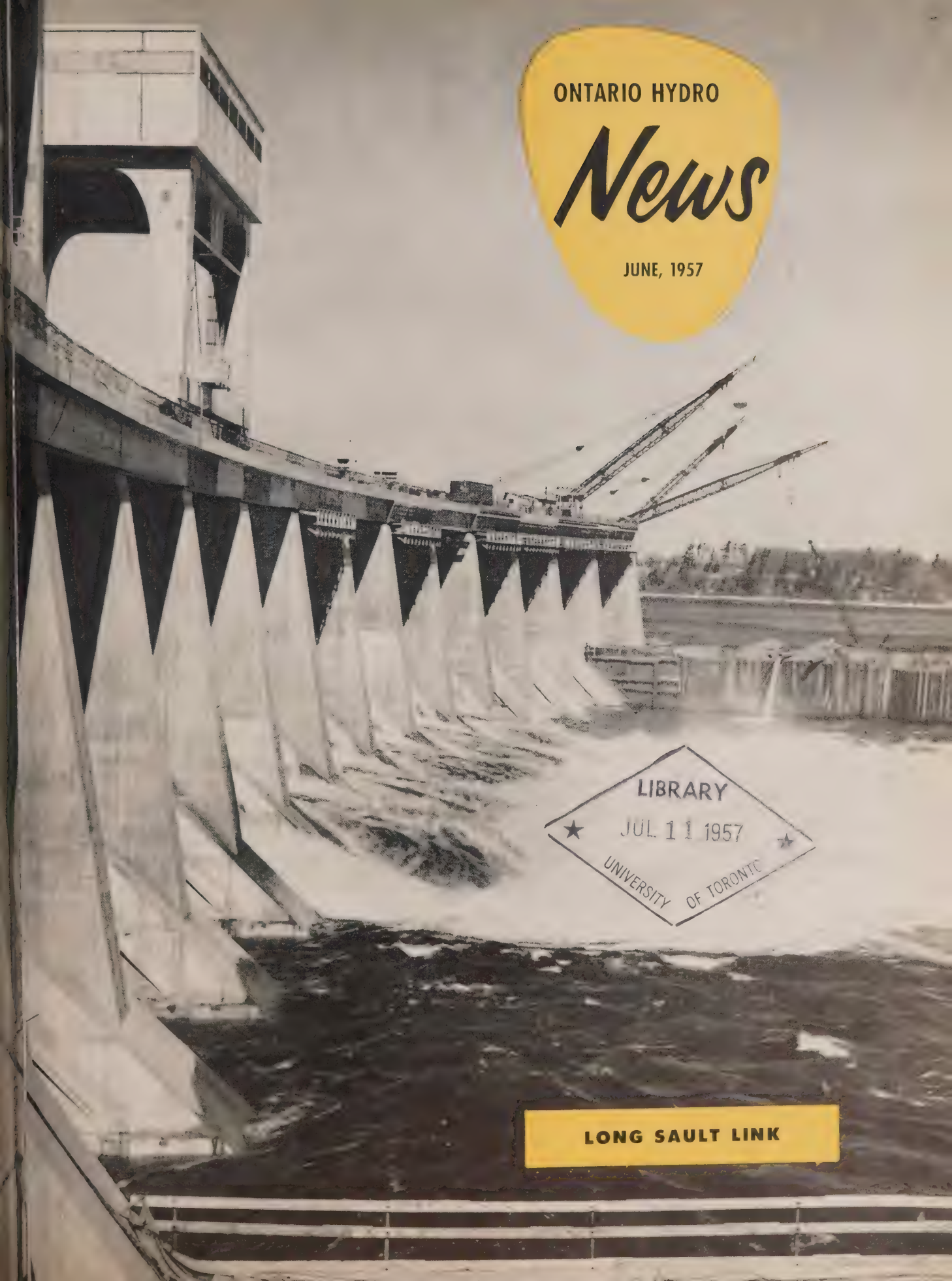
This, and other similar examples, indicate that a study of the nature of various loads can provide valuable information about individual systems. Not only will a load growth study indicate certain important trends, but will prove beneficial to both electrical utilities and the communities they serve. ■


Summer's advance troops

ONTARIO HYDRO

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"DO'S AND DON'T'S" OF CUSTOMER RELATIONS

ERASMUS, a Dutch writer and philosopher of the 16th Century, in citing three qualifications of a good servant in his "Convivium Poeticum", declared that the ideal one "should be faithful, ugly and fierce."

Of course, it's quite possible that the author was in a flippant mood when he penned this line. But if he was serious, then our concept of service, fortunately, has gone far beyond those narrow limits.

While there will be general agreement with Erasmus' belief that true service should be characterized by faithfulness, it should be equally apparent that ugliness and fierceness are no longer necessary or desirable attributes.

Modern dictionaries contain an almost bewildering number of definitions for the word "service" -- Webster's being sufficiently explicit to describe it, in one sense, as an "act or means of supplying some general demand, especially of conducting some public utility."

On numerous occasions — particularly at gatherings of Ontario Municipal Electric Association and Association of Municipal Electrical Utilities representatives — responsible authorities of both Ontario Hydro and the associated municipal electrical utilities have taken the opportunity to remind all levels of management and staff of the functions and responsibilities of public service. These instructive discussions have persistently stressed the theme that electrical utility representatives in Ontario — although engaged, for the time being at least, in an essentially non-competitive field — must guard against arbitrary attitudes or actions in their customer contacts.

Thus, it is gratifying to find that many people associated with Ontario electrical utilities today are imbued with a keen appreciation of their obligations to their customers. A cogent example of this consciousness can be found these days on the bulletin boards of the recently opened Ottawa Hydro-Electric Commission building. A notice on each board directs the staff to refrain from using the term "trouble calls", and to substitute the words "service calls" in all future verbal and oral communications. This directive, it is fully anticipated, should serve to engender a feeling among the staff that calls from customers to effect repairs or to render assistance in electrical emergencies do not constitute "trouble", but actually represent a "service" that the Ottawa staff is ready and willing to perform.

While there is no magic formula for maintaining good customer relations, there are many important "DO'S" and "DON'T'S" — such as the positive one cited above — that should receive constant consideration. Some utility representatives even suggest that the "DO and DON'T" lists be framed and placed on the walls of utility buildings where they could be read by staff members before starting work each morning. As one electrical utility executive remarked recently: "DO count every satisfied customer precious. DON'T make one dissatisfied customer unnecessarily."

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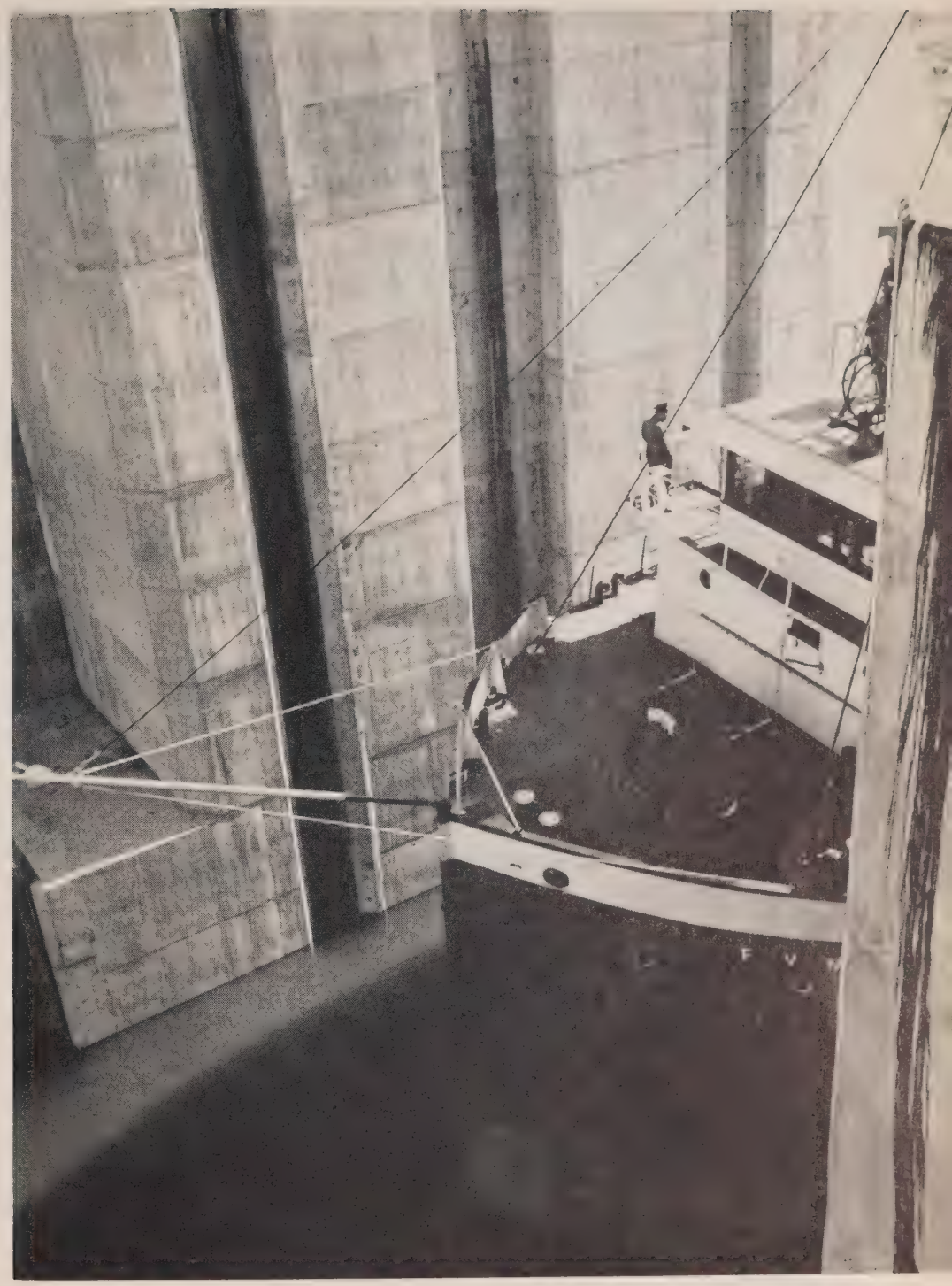
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COVER SHOTS

WATER diverted from the turbulent Long Sault Rapids is now boiling through the six raised sluice-gates of the completed first section of the Long Sault dam on the St. Lawrence River as depicted on our front cover this month.

In much quieter vein is our back cover view of a section of the Oakes Garden Theatre (with the Rainbow Bridge Carillon Tower in the background) at Niagara Falls, Ont.

CORNWALL CLOSURE

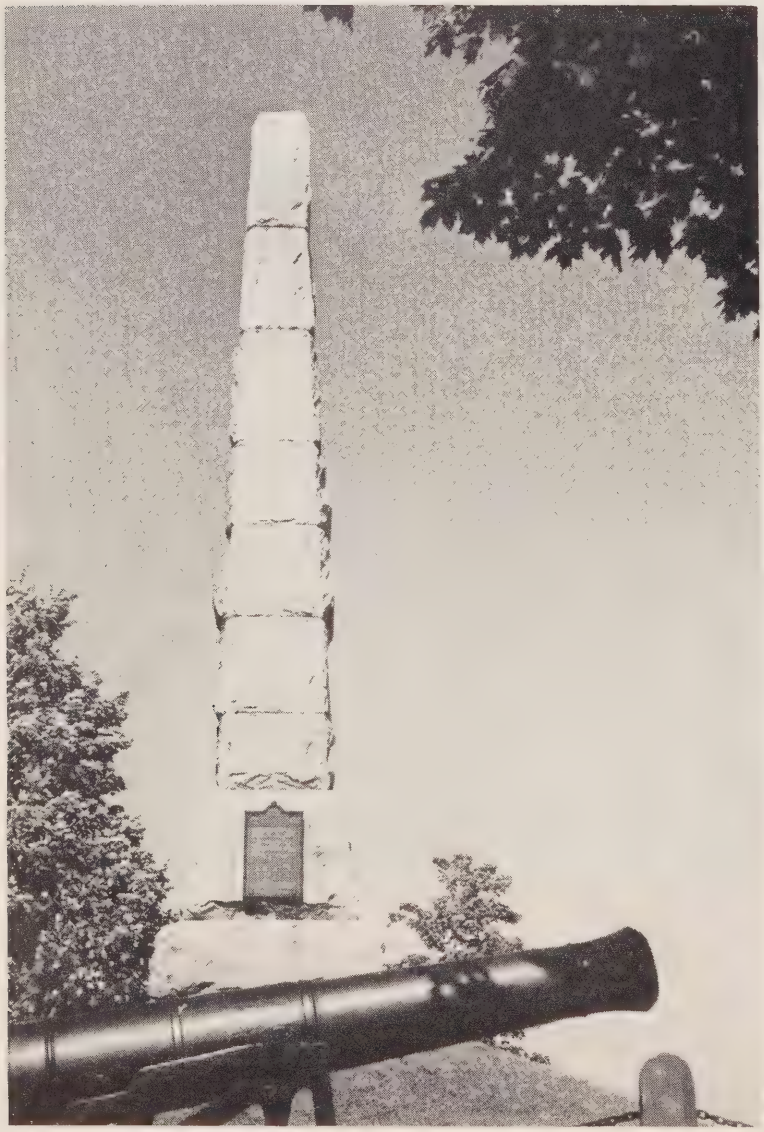


THIS is a historic photograph marking the opening of the 1957 navigation season and depicting the "F. V. Massey" nosing through the closure structure in the new Cornwall diversion canal. The 1,895-ton freighter was the first cargo vessel to enter Ontario Hydro's mile-long diversion canal, which is detouring navigation while work continues on the Cornwall dyke. The dyke will block the old Cornwall canal. The closure structure will permit shipping traffic through the busy St. Lawrence Power Project construction area while the dyke is being built. Steel gates will block off the opening in the structure when flooding occurs.



EVERGREEN Hall, the residence of the late John Pliny Crysler (1801-1881) is one of the homes which will be moved to Upper Canada Village. Located a few miles east of Morrisburg, it was built in the 1850's.

A PARK WITH A PAST



THIS obelisk, erected as a memorial to the Battle of Crysler's Farm has always been a favorite subject for photographers. The cairn will occupy a prominent place in the park.

In the Fall of 1813 an American invasion army under the leadership of General James Wilkinson, Commander of the army of the North in the War of 1812-14, assembled at Sackett's Harbour on Lake Ontario, and proceeded down the St. Lawrence River with its objective the capture of Montreal and the conquest of Canada.

This army, numbering 8,000 to 10,000 men of various units and brigades under top ranking division generals, met some sporadic opposition from naval vessels from Kingston, while passing Fort Wellington at Prescott.

Reaching the rapids section of the River, they navigated the Galop Rapids, and making a brief pause at Sparrow Hawk Point on the American shore, disembarked a force of elite troops at a point on the Canadian shore about a mile above Iroquois. This force was to proceed on land to clear any possible opposition to the progress of the main American flotilla along the rapids section to the vicinity of Cornwall.

A small force numbering 850 to 1,000 men of British and Canadian units from Kingston, was following closely. At Cook's Point just east

Ontario-St. Lawrence Development Commission supervises plans to preserve the storied history of the St. Lawrence Valley

BY GARY SMITH

of Crysler's farm, five miles below Morrisburg, the Americans stopped to organize before negotiating the Long Sault Rapids. The British and Canadians under Lieutenant-Colonel Morrison closed on the American rear, took up a position on Crysler's farm, and proceeded to press the American position.

General Wilkinson decided to endeavor to wipe out this opposition, and on November 11, 1813, with infantry divisions, artillery and dragoons, comprising 2,500 to 3,000 men, joined battle with the British and Canadian force.

Thus took place the Battle of Crysler's Farm which, ranking in military operations and defensive importance with other battles of the War of 1812-14, resulted in a decisive defeat to the American invasion army in its aspirations for the conquest of Canada. A commanding obelisk, situated five miles east of Morrisburg, marks the place where the Battle of Crysler's Farm was joined, and pays eloquent tribute to the bravery of the United Empire Loyalist settlers who fought with the Canadian militia.

Today, the men and women of this historic area, many of them descendents of the original pioneers, are meeting the challenge of modern progress by giving up their ancestral

(Continued on page 4)



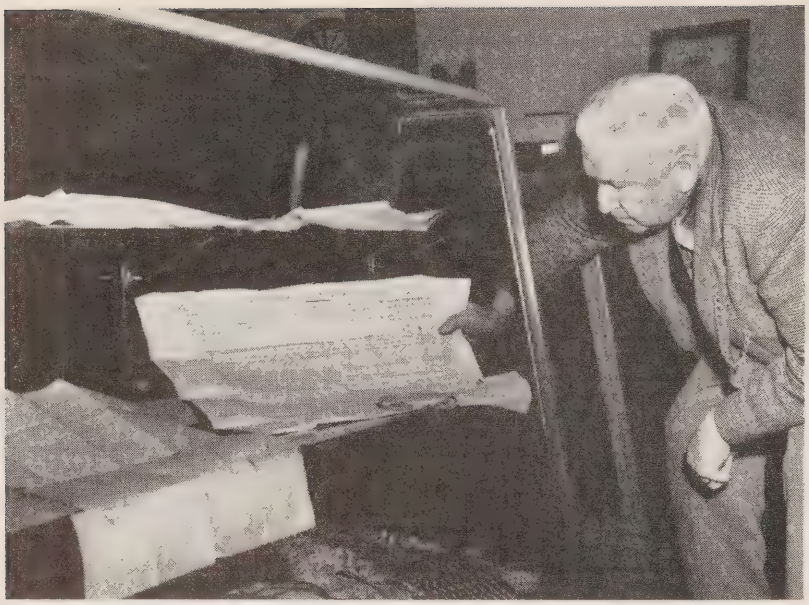
SOME of the historic homes, like the Brouse house in Iroquois built about 1805, are still occupied by descendants of pioneer settlers.



LAST OCCUPANT of the old home, Mrs. George Brouse holds an iron kettle, "borrowed" by U.S. troops in 1813 and retrieved later on.



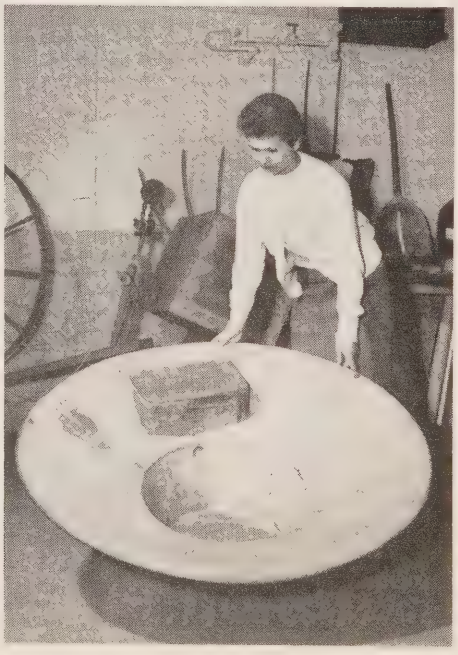
COOK'S Tavern, built during the early years of the 19th Century, served briefly as headquarters for invading American forces in 1813.



△ JAMES Rooke, Morrisburg, who is supervising the exacting task of gathering and sorting items for the museum in Upper Canada Village, examines a Crown Land grant deed.



◁ ELIZABETH Lengyel, a member of the personnel staff at Hydro's Morrisburg rehabilitation office, marvels at the strength required to lift this iron maple sugar pot, which was made in the 18th Century.



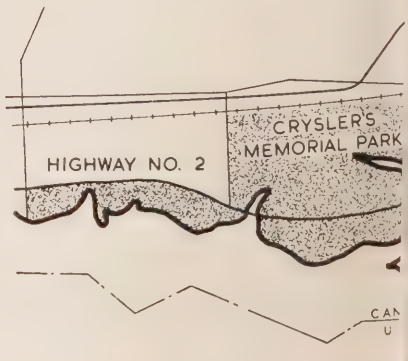
THE odd design of Captain Farlinger's round bathtub (mentioned elsewhere in this article) holds Miss Lengyel's interest. ▷

homes to make way for the St. Lawrence Power Project and the associated deep-channel Seaway. A 20,000-acre area along the Canadian side of the river, including the Crysler Farm site, is being cleared in preparation for the flooding operation in 1958, which is to form the headpond of the 1,640,000-kilowatt power project.

The power and seaway developments, for years only a dream to residents on both sides of the St. Lawrence, have become a reality because of the close co-operation and mutual amicability of Canada and the United States. And the Battle of Crysler's Farm now is only a symbol of the early growing pains that accompanied the forging of two great neighboring nations.

Steps are being taken, however, to ensure that the storied history of the St. Lawrence Valley and numerous early pioneer relics are preserved. Early in 1955 the Ontario Government announced plans to preserve this early U.E.L. history in a provincial park near Morrisburg.

A 1,400-acre site along the shore has been set aside for this purpose, and will be named Crysler's Farm Battle Park. About 12 of the area's best examples of early U.E.L. architecture, including the old Crysler home, Evergreen Hall, will be placed in the site and furnished with early furniture and household artifacts collected from the five counties of Leeds, Grenville, Stormont, Dundas



and Glengarry. The Battle of Crysler's Farm obelisk and a memorial cemetery, containing grave markers of some of the area's first residents, will complete the historical section.

Outdoor recreational facilities will include bathing beaches, picnic, camping and trailer areas, a games section, nature trails and boat landings.

Additional plans provide for a 6½-mile scenic parkway through about a dozen small new islands to be formed when flooding for the headpond occurs. This driveway, with an entrance and exit off Highway 2 in front of the new towns of Ingleside and Long Sault, already is under construction. During the summer months, it will provide a picturesque drive for tourists.

Green Belt

In all, some 3,500 acres of land along the river will be vested in the Crown, and will be preserved as a green belt. Behind the arduous planning and preparation that must go into this project, is the Ontario-St. Lawrence Development Commission. Its Chairman, George H. Challies, is a former Minister of the Ontario Government, a former Vice-Chairman of Ontario Hydro and an ardent conservationist. Mr. Challies represented the provincial riding of Grenville-Dundas for over a quarter of a century, and, until recently, lived in Morrisburg.

Associated with him as members of the Executive Committee are First Vice-Chairman Dr. J. L. Carroll, Brockville, and Second Vice-Chairman James Smart, Morrisburg. The six commissioners, all from the area, are Joseph Filion, Green Valley; Mrs. J. T. Smith, Alexandria; Dr. J. A. Phillips, Cornwall; Mrs. Thorold Lane, Aultsville; Allan Farlinger, Matilda Township, and T. Carl Reilly, Cardinal.

Early in January of this year, work was begun on the formidable task of transplanting in Crysler Park a selection of pioneer homes constructed well before the turn of the century. Solidly built, these old structures must, nevertheless, be handled delicately, because of their size.

One choice for the park is a brick dwelling known as Cook's Tavern, which was built between 1800 and 1810, and used as a headquarters by American General James Wilkinson when he commanded the U.S. forces at the Battle of Crysler's Farm.

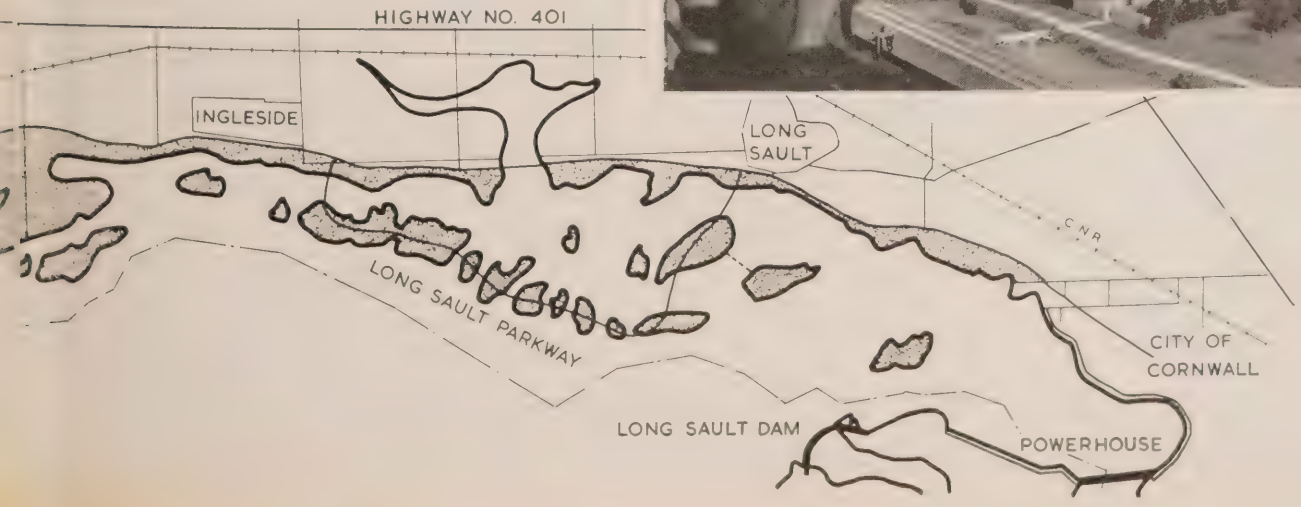
Another is the Robertson House, west of Cornwall, built about 1810, and occupied until this year still by a descendant of its first residents. Such old homes will be arranged along a semi-circular drive, forming an early 19th century Upper Canada village and fronting on a small copy of the earliest ship canal built along the north shore of the St. Lawrence.

The dominant structure in the park will be the Crysler obelisk, which is to stand atop a terraced elevation overlooking the river. At

(Continued on page 29)



Scale models of Crysler Memorial Park and environs are used ▷ by the Ontario-St. Lawrence Development Commission in planning much of the construction and landscaping work. Here, left to right, George H. Challies, Chairman; James Smart, Second Vice-Chairman; and Dr. J. L. Carrol, First Vice-Chairman, examine a model of the memorial cemetery. Below is a map of the Morrisburg-Cornwall area, showing the section administered by the Development Commission.



TRIBUTE IN STONE

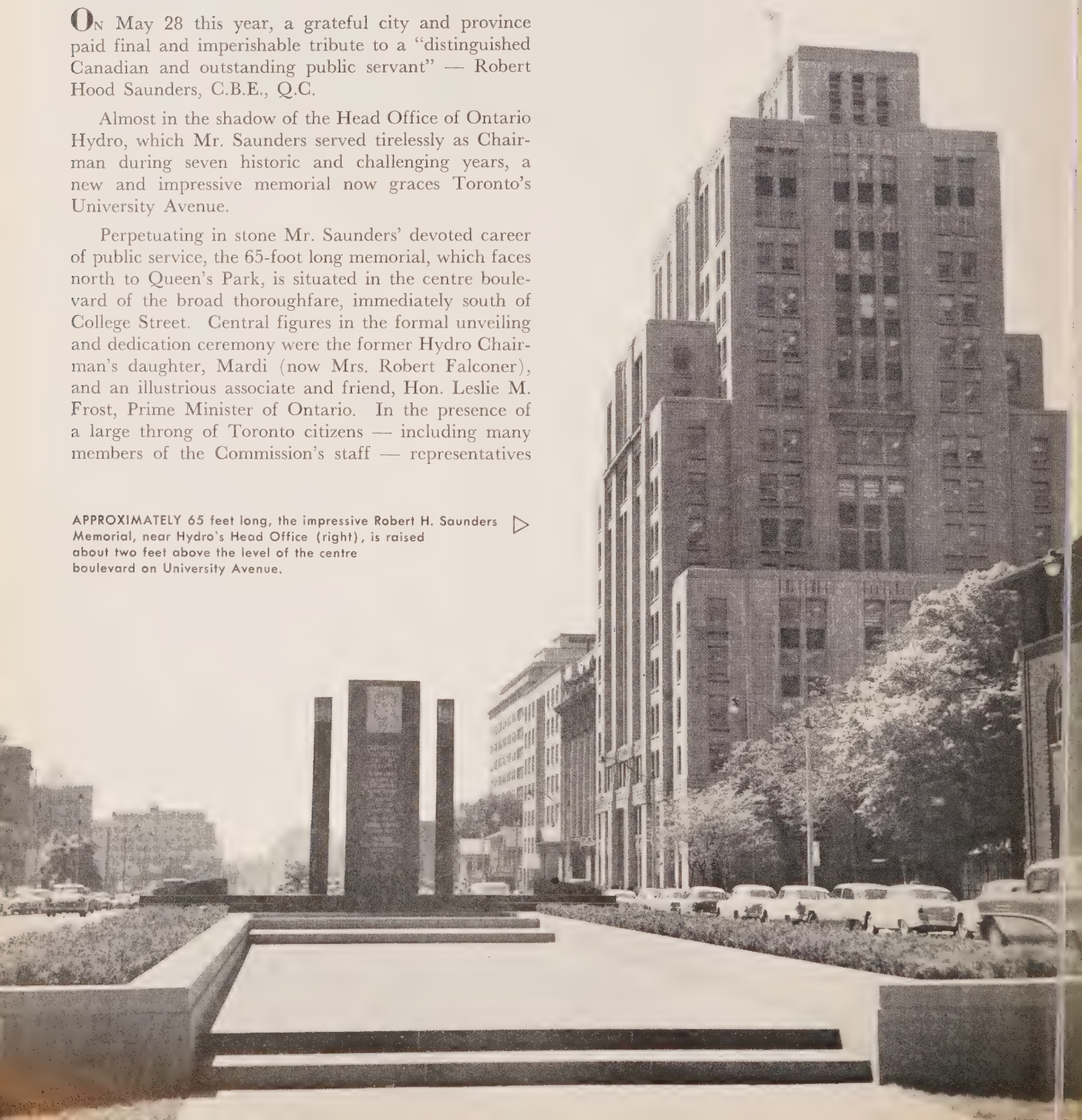
Impressive Toronto memorial perpetuates memory and achievements

of the late Robert H. Saunders, former Hydro Chairman

On May 28 this year, a grateful city and province paid final and imperishable tribute to a "distinguished Canadian and outstanding public servant" — Robert Hood Saunders, C.B.E., Q.C.

Almost in the shadow of the Head Office of Ontario Hydro, which Mr. Saunders served tirelessly as Chairman during seven historic and challenging years, a new and impressive memorial now graces Toronto's University Avenue.

Perpetuating in stone Mr. Saunders' devoted career of public service, the 65-foot long memorial, which faces north to Queen's Park, is situated in the centre boulevard of the broad thoroughfare, immediately south of College Street. Central figures in the formal unveiling and dedication ceremony were the former Hydro Chairman's daughter, Mardi (now Mrs. Robert Falconer), and an illustrious associate and friend, Hon. Leslie M. Frost, Prime Minister of Ontario. In the presence of a large throng of Toronto citizens — including many members of the Commission's staff — representatives



APPROXIMATELY 65 feet long, the impressive Robert H. Saunders Memorial, near Hydro's Head Office (right), is raised about two feet above the level of the centre boulevard on University Avenue. ▷



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KEY FIGURES in the brief unveiling ceremony, Mrs. Robert Falconer (formerly Miss Mardi Saunders) and Ontario's Prime Minister, Hon. Leslie M. Frost, uncover monument to the "distinguished Canadian."



△

CHAIRMAN Frederick G. Gardiner, Metropolitan Council of Toronto (back to camera), eulogized Mr. Saunders' achievements. Left foreground are Committee Chairman Kingsley Graham and Premier Frost.

of the Province of Ontario, the Ontario Municipal Electric Association, the Association of Municipal Electrical Utilities (of Ontario), and other distinguished personalities, they carefully drew the covering drapery to reveal three slender shafts of blue pearl granite, quarried in Norway. In the central memorial panel, an inset bas relief of Mr. Saunders' rugged profile in white, non-tarnishable metal, surmounts brief but graphic inscriptions. Lauding him as a distinguished Canadian and outstanding public servant, these inscriptions recount his notable career: Mayor, City of Toronto, 1945-1948; Chairman, Ontario Hydro, 1948-1955, and President, Canadian National Exhibition, 1954-1955. The coats-of-arms of the City of Toronto and Ontario Hydro are inscribed on the flanking granite shafts.

Terraced Pool

Gracefully complementing the modest dark-toned shafts, a small terraced pool of blue and white Italian mosaic symbolizes Mr. Saunders' association with the Commission and its active development of the water-power resources of the province in its first half-century of existence. A carefully-planned arrangement of 1,100 Korean boxwood shrubs, 30 dwarf yews and salmon geraniums, adds interest to the Queenston limestone planting areas along three sides of the memorial. A paved area of Georgian granite leads to the headstones and waterfall, which are enhanced by floodlighting at night.

Erected through the generosity of friends, associates, various organizations and by contributions from Hydro municipal utilities and employees, the memorial was completed under the aegis of the Robert H. Saunders Memorial Committee with A. Kingsley Graham, Q.C., Toronto, as its Chairman. Design and construction were handled by the Ontario Hydro staff under K. H. Candy, Commission Architect, while the sculpture was executed by Emanuel Hahn, renowned Canadian sculptor, who died a few weeks before the formal unveiling. Significant is the fact that the late Mr. Hahn also designed the monument erected in memory of Sir Adam Beck, first Ontario Hydro Chairman (1906-1925) on the centre boulevard of University Avenue, immediately south of Queen St.

Appropriately enough, Mr. Graham presided at the dedication ceremony, which was attended by Mr. Saunders' mother, Mrs. Rebecca Saunders, Toronto; a sister, Mrs. R. W. Coleman, Detroit; three brothers, Charles, Henry and Cecil, and the former Mrs. Saunders, now Mrs. J. P. Maher.

(Continued on page 8)



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GOVERNMENT and civic representatives joined with Toronto citizens, including many Ontario Hydro employees, in honoring the former Hydro Chairman's memory during the brief dedication ceremony.

In his introductory remarks, Mr. Graham referred feelingly to his long association with the former Hydro Chairman, who died on January 16, 1955, from injuries sustained in an aircraft accident near London, Ont. Mentioning the memorial itself, Mr. Graham expressed the view that it would enhance the appearance of University Avenue, one of Toronto's most beautiful thoroughfares.

"I am certain that he would have been proud to be remembered by something that will serve to further beautify the city he loved and served so well," the speaker declared. At this juncture, he proffered the appreciation of the committee to members of the Toronto City Council and the Metropolitan Council of Toronto for their assistance and interest in making the site available.

Dynamic Personality

Participating in the unveiling, Premier Frost eulogized "the dynamic, energetic, enthusiastic personality whom we today commemorate in stone in the form of this beautiful memorial."

Paying tribute to Mr. Saunders' "extraordinary talents," Mr. Frost also acknowledged "with gratitude his friendship and the loyalty and devotion with which he pursued the great objects, which were given him to accomplish." In tracing the career of the former Mayor of Toronto, the speaker pointed out that Mr. Saunders had been happiest at a crowded intersection where he saw and met people.

After serving in almost every elected capacity in his native city, including the office of Mayor, he found his greatest challenge and opportunity when he accepted the Chairmanship of Ontario Hydro.

Recalling that the province was suffering from a power shortage — an aftermath of depression and war — when Mr. Saunders assumed the new post in March, 1948. Premier Frost said he had brought to his new office "all of his restless and infectious nature."

"During the seven years of his chairmanship, 16 new power sources with a capacity of three million horsepower were developed — more than doubling the Commission's capacity.

For years the redevelopment of Niagara had been under consideration. Mr. Saunders revived the negotiations leading to the signing of a new diversion treaty in 1950. "Today, not only are the additional power resources made available to Ontario through this treaty completely developed, but there is also a great enhancement of the scenic beauty of the Falls."

Threads of Action

Turning to the St. Lawrence Power Project, Mr. Frost recalled that Mr. Saunders as Hydro Chairman had "gathered together the threads of action, the ideas of people, personalities in government, and today the St. Lawrence — long thought of and long despaired of — is approaching completion."

"This memorial is indeed a fine tribute, but the greatest tribute we can pay our late friend, Robert, is to make sure that the unbounded confidence he had in our country's possibilities and future is translated, as he was translating it, into facts and achievements, that the spirit he possessed, with all of its enthusiasm and vision, become the possession of each one of us."

Following the unveiling ceremony, Mr. Graham acknowledged the presence of Controller Mrs. Jean Newman, who as Acting Mayor of Toronto represented Mayor Nathan Phillips, who was absent in Europe. Mr. Graham read a telegram from Mayor Phillips expressing his regrets and lauding the civic achievements of Mr. Saunders.

He then presented to F. G. Gardiner, Chairman of the Metropolitan Council of Toronto, a scroll expressing commendation of the council's action in making the land available for the memorial. Mr. Gardiner in replying, also added his solemn tribute to Mr. Saunders. The brief but simple ceremony was brought to a conclusion with the dedicatory prayer offered by Rev. John Short, D.D., Minister of St. George's United Church, Toronto. ■

"ELECTRICAL WEEK" PARTICIPATION PRAISED

LISTOWEL'S participation in the program for National Electrical Week has drawn praise for the local public utilities commission from several sources. Chairman Thomas Moffat recently announced that commendation had been received from Ontario Hydro and from other provincial groups. Mr. Moffat said that he, too, thought the town had done an exceptional job in the promotion of Electrical Week.

In particular, Mr. Moffat expressed his appreciation to both the local high and public schools for their fine work in the recent essay contest. The number of entries, each based on the subject "The Progress of Hydro," had been most gratifying, and had shown a uniformly high calibre. The three prize-winning high school essayists appeared before the commission and received cheques ranging from $10 to $25. Winners in the public school contest received prizes of $5 to $15.

Mayor George Leith did the honors in presenting prizes to the public school winners, commending them for their excellent stories. Commissioner Jack McMichael gave cheques to the high school winners, saying that all the essays entered had been worthy of mention, and pointing out that the task of judging the winners had been most difficult. Judges of the high school contest were Howard King, Mrs. W. M. Pratt and C. W. Bamford, while Miss Vivian Clayton and George Tatham formed the public school panel. ■



△ High school winners are shown with Commissioner Jack McMichael (left). The prize-winning contestants, from left, Carol Weiss, third; Elizabeth Stone, second, and Murray Leslie, first.



▷ Mayor George Leith, Listowel, is shown here with winners of the essay contest in the local public school. Receiving their cheques are, left to right, Deanna Proudley, third; Karen Neable, second, Elizabeth Jack, first.

ON THE ISLAND OF MALTA . . .

ELECTRICITY IS A LUXURY

(Exeter Times-Advocate)

MRS. SAVIOUR AQUILINA and her three youngest children are enjoying the miracles of electricity in their new home on Andrew Street in Exeter.

Just a short time in Canada, the four are avidly watching TV, relishing fresh foods in their refrigerator, and baking from their range, marvelling at the luxury of a washing machine, vacuum cleaner and floor polisher.

Beaming proudly in the background is "Sam" Aquilina, a retired British sailor, who skimped and saved for five years at RCAF Station, Centralia, Ont., to see his family reunited in their nearby Exeter home.

The Aquilinas are from the tiny British isle of Malta in the Mediterranean, where electricity is at premium and appliances a luxury only the wealthy can afford.

"It would cost us at least $150 a month for the electricity alone if we had all these appliances in Malta," says Mr. Aquilina. "Our power is manufactured from coal, which we have to import from England, and it costs so much we wouldn't think of leaving a room with the light left on."

Mr. Aquilina staged quite a reception for his family when they arrived. They flew from Malta to New York, where he squired them on a three-day holiday in the big city. Then he brought them to a completely redecorated and handsomely-furnished home in Exeter.



The reunion meant the end of a five-year plan for the Maltese father who literally started a second life when he came to Canada six years ago. After spending 26 years in the British Navy, he retired to his home in Malta, but he found his naval pension wasn't sufficient to bring up his family the way he wanted to. So in September, 1951, he sailed for New York, travelled to Canada, and got a job with a construction company at RCAF Station, Centralia. He's been here ever since, except for one return visit to his native land, and now he's in charge of the flight cadets' mess at the station. Now his dream has come true. His family is reunited in a comfortable home in an expanding country. He's a happy man.

School Welcome

The children are excited about their new home and the welcome they received here. On their first day at Exeter Public School they found their new classmates arguing over who would have the privilege of walking them home so they wouldn't get lost. On the second day, they were invited to a birthday party.

"I like Canada," enthused 11-year-old Pauline. And her nine-year-old brother, Alfred, agrees wholeheartedly. So does 19-year-old Mary, who hopes to resume her nursing career here soon.

Another member of the family,



MALTESE FAMILY TOGETHER IN NEW HOME

SAVIOUR Aquilina, a retired British sailor from Malta, brought his family from their Mediterranean island home to Exeter recently after spending five years in this country preparing for their coming. Here watching TV, left to right, are: Mary, Mr. Aquilina, Alfred, Mrs. Aquilina and Pauline. Mr. Aquilina purchased a home in Exeter and had it handsomely furnished before the family arrived in Canada.

Tony, has been at Centralia with his father for several years. A talented musician, Tony is assisting the junior band here. The Aquilinas have three other boys, one in the British Navy, another in the British Army, and a third in Australia.

The Aquilinas' former home was in Valletta, the island's capital, a city of 35,000 people. From their living room, they looked out over the sea where the world's ships passed by on their way to the Suez.

Temperatures never get below 50 degrees, and farmers harvest two crops yearly of the best potatoes in the world. They also grow wheat and all fruits. All the houses are made of stone and none have furnaces. The more elaborate ones have fireplaces.

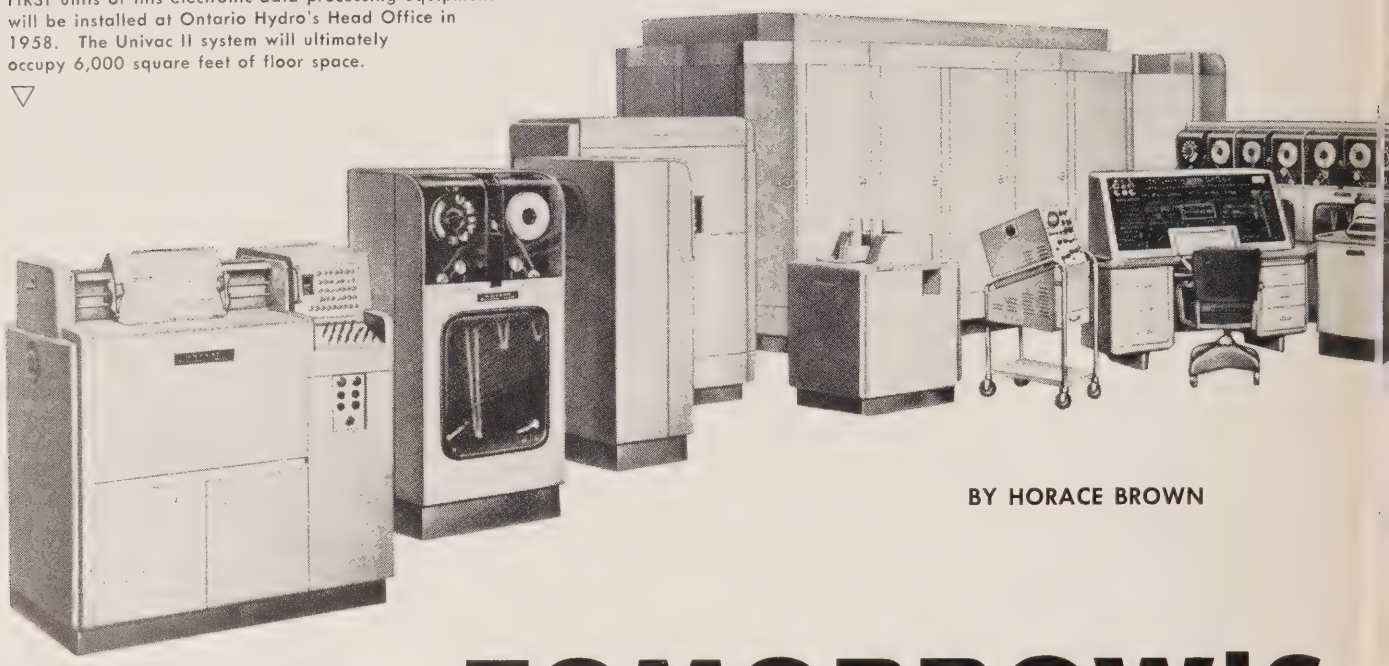
The country has two official languages Maltese and English which are taught from kindergarten on. The children had little difficulty with language when they arrived here. During the war, half of the island was destroyed by German bombers, who raided the island night and day for three years. During that time, the Aquilina family, with the other Maltese, lived underground.



The island has many sandy beaches where swimming is popular. Mrs. Aquilina says she misses the sea the most — but her husband reminds her there's lots of water at nearby Grand Bend. Malta's national sports are soccer and water polo. They also enjoy horse racing. Maltese are a festive people, and each of the 75 villages and towns has its own special holiday during the year. Music is the popular art, and the island has hundreds of large orchestras, some among the best in the world.

Dances are popular — there's one every night. And guess who is the most popular recording star in Malta? Elvis Presley. One of the first performers the children saw on TV was Elvis. The two girls went "wild" with delight.

Even Mr. Aquilina was surprised at that. ■



FIRST units of this electronic data processing equipment will be installed at Ontario Hydro's Head Office in 1958. The Univac II system will ultimately occupy 6,000 square feet of floor space.

▽

BY HORACE BROWN

TOMORROW'S PATTERN

Ontario Hydro sets its sights on the age of automation

OVER the next decade, the so-called "automatic office" is going to become a reality with large Canadian businesses.

While office automation, without planning and foresight, could bring dislocation, the present preparations of industry, business, management and labor to absorb its impact will greatly lessen the anticipated blows that precede the entrance of, adjustment to and acceptance of a blessing.

With automation a fact, it is expected that work will be more pleasant and profitable, employment and responsibility of the individual will accelerate, and greater leisure will accumulate for cultural and healthful activities. In all, properly-integrated automation should spell the opening up of new horizons.

In its essence, this is how prominent leaders of both management and labor have come to look upon automation. Their studies of the subject have led them by separate paths to the same conclusion: that automation, handled wisely and well, will be an inestimable boon to mankind, a corollary to the atomic age, through whose door we have barely thrust a timid toe.

One of Canada's largest organizations is approaching office automation in this vein. Ontario Hydro, which has earned itself a reputation for keeping pace with modern thought, and of taking long and careful looks at the future, is bringing office automation to its province-wide organization by an orderly and planned process.

Automation Not New

The decision to install one of the larger electronic computing machines at Ontario Hydro was reached after long and careful probing into all aspects of the problem. Automation is not new to Hydro. The perfect example of automation, experts say, is the generating station. Hydro has also had automation in its circuit-breakers for many years, and there has been automation since 1924 in its linked power plants on the Trent River. As one of the country's largest users of telephones, it has seen the automation of the dial system, listened to the predictions

that the dial telephone would mean the end of the operator, and watched The Bell Telephone Company of Canada hire more and more telephone operators every day.

But Hydro, as with every large organization, does not leap before it looks. It has a great responsibility to the public, for, in effect, every citizen of Ontario is a "shareholder" in this vast public enterprise. Created in 1906 by Act of Legislature, Ontario Hydro, in 51 years, has acquired assets now totalling slightly more than two billion dollars, and employs some 18,000 persons in just about every conceivable variety of occupation from nuclear physicist to frogman. With its 18-storey Head Office at 620 University Avenue, Toronto, it has nine regional offices and 104 rural operating area offices across the province. Any plan of office automation would have to take all these factors and many more into account.

Nearly three years ago, Hydro installed a Computing Centre, using IBM equipment, and found this relatively small electronic computing apparatus a valuable aid in complex computations and to a lesser extent, in data processing.

Study Team

Late in 1955, a team of Hydro methods men and statisticians went to work to determine whether large-scale electronic equipment would be of assistance in the Commission's work. Headed by Fred P. Thomas, the group, composed of Thomas J. Hogg, W. H. Sanders and J. P. Simpson, assisted by W. B. Riggs and K. E. Ingram, spent a year of intensive study and planning. The answer: *yes.*

It was decided to install a UNIVAC II electronic system, which would be ready for initial operation in 1958.

On October 23, 1956, a letter was received by each Hydro employee, signed by A. W. Manby, General Manager, announcing the decision to embark on the use of large-scale electronic equipment, and outlining Hydro's policy in this regard. The letter pointed out that the transition would be gradual, requiring six years to complete, and that many routine and monotonous tasks would be eliminated, offering work of a higher order of interest and skill.

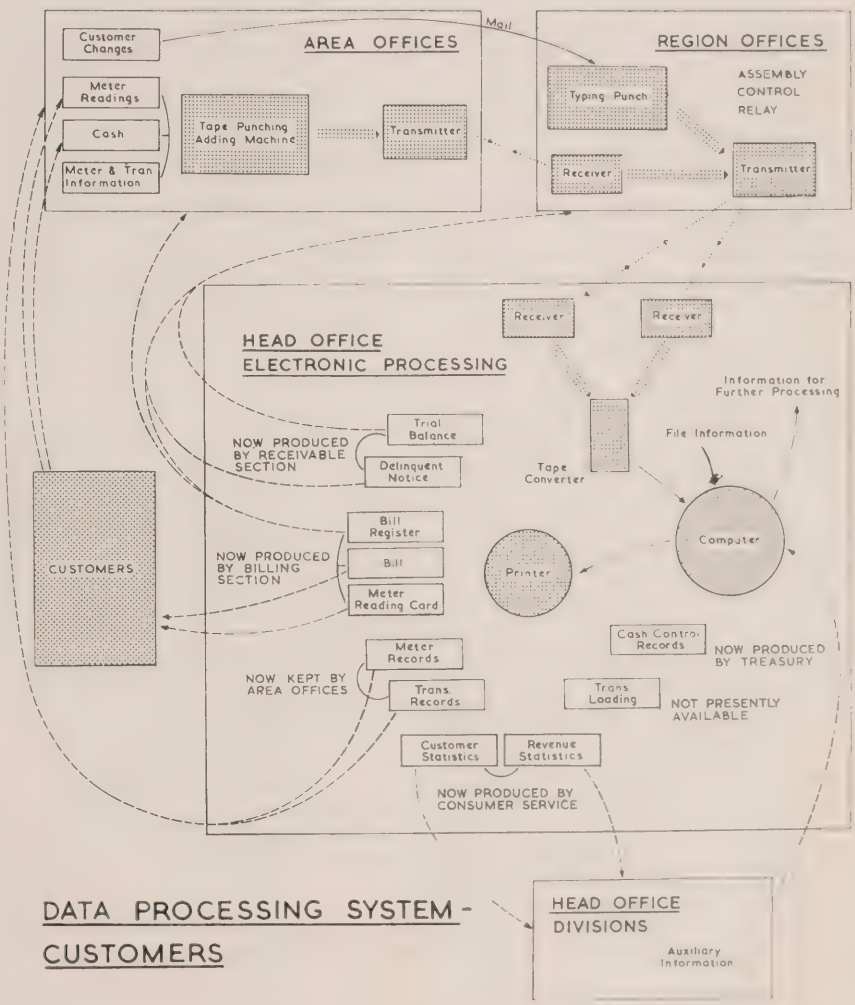
The letter also contained a pledge of Hydro policy of employment:

"It will be our aim to see to it that no employee loses in terms of job security and remuneration."

To implement the introduction of electronic data processing, a Data Processing Division was created within Hydro, with Mr. Thomas as its Director, and the members of the original team as the Division's nucleus. The Ontario Hydro Employees' Union and the Society of Ontario Hydro Professional Engineers were kept informed of all moves made by management, and a Liaison Committee was set up, composed of representatives of both management and the unions.

UNIVAC II system will occupy about 6,000 square feet at Hydro's Head Office. It will replace much

(Continued on page 14)



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IT IS anticipated that the Univac system will handle customer accounting as well as scientific and engineering computation. This would involve linking the Commission's 104 area and nine regional offices with the central processing office in Toronto through a teletype network.



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HERBERT PATTERSON (centre), a Remington-Rand instructor on the Hydro course on data processing discusses a knotty problem with two "pupils," Miss Audrey Ring and Allan R. Oliver.

of the Commission's computing, punch-card and other electronic equipment now in use. In providing data for UNIVAC, Hydro may find it necessary to link its nine regional offices and 104 rural operating area offices with the central processing point at Toronto through a teletype communication network. Eventually, it is expected, much of Hydro's commercial data processing, such as customer accounting, payrolls, and inventory control, as well as scientific and engineering computation, will be performed by UNIVAC.

The General Manager's letter to Hydro employees contained another significant statement: "Prior to the delivery of the new machines, and during the transition period, those employees affected will be given every encouragement and opportunity to train and equip themselves for equal or better jobs, in either data processing or elsewhere in the Commission."

This opportunity was not long in materializing. It was decided to conduct several 17-week courses to train selected personnel to master the intricacies of UNIVAC. To fill the first two courses, positions were advertised within the Commission, with emphasis upon acceptance for accounting personnel, both at Head Office and in the regions, recognizing that these employees would feel the first impact of office automation.

A total of 263 applications were received for the first advertised vacancies. Some 50 "students" were accepted, of whom almost 20 per cent were women. Also included were members of the staff of Hydro's Computing Centre, who will, as soon as the machine is installed and operating, conduct its premier assignment, namely all engineering calculations presently carried out at the Computing Centre.

17-Week Course

The first 17-week course, in specially-prepared classrooms, was completed recently and the second is now underway. The course is divided into four parts. About 13 weeks, which are not consecutive, are devoted to computer technology and programming, and this phase of training is conducted by personnel from Remington-Rand, the manufacturers of UNIVAC. The staff of Hydro's Organization Services Division are the "pedagogues" for two weeks on work simplification and methods analysis. One week's training is under auspices of the Employee Relations Division, stressing human relations as applied to systems work. The remaining week deals with the communications systems and equipment, and is guided jointly by the Data Processing Division and representatives of the manufacturers.

While preparation of the course itself was complex, it did not offer as many difficulties as the selection of personnel to fill the advertised vacancies. The calibre, abilities and occupations of those applying were extremely varied, and this made the screening and selection of the successful applicants more exacting.

In the particular group for the first course, the desire was for planning personnel, equipped with special personal and academic qualifications. This required judicious selection, particularly in view of the high quality of employee applying.

Selection panels were set up, and thoroughly briefed in the requirements expected of those to be selected. A qualifying applicant was given two thorough interviews. The first was by a member of the Data Processing Division and a personnel officer. The second interview was by a panel consisting of the applicant's department manager or designated representative, two members of the Data Processing Division who had been engaged in the original feasibility study, and a personnel officer.

Both interviews were so designed as to give the applicant every possible opportunity to establish his or her abilities and experience, and to display his or her personal inclinations. A factor was the interviewee's interest in and enthusiasm for the subject, when matched with the qualifications possessed. Applicants meeting the second panel were encouraged to ask questions relative to the nature of the work to be performed. Pursuing what had

become an almost habitual task of "crystal-gazing," the Data Processing staff answered these questions as completely as time would allow.

Most careful records were kept of the interview. These, together with the applicant's previous history, aided considerably in the final selections.

326 Interviews

In all, over a short span of a month, 326 interviews were conducted for the first course. Naturally, a number of candidates were not interviewed, as their application forms made it evident they would be miscast in the planning phase.

So it has been back to school . . . and a most interesting school it was for the vanguard of those who will help to introduce the techniques of electronic data processing to Ontario Hydro.

Of course, the classroom is only the beginning. Behind the scenes, preparations are being made for the use of the planning staff now being trained.

The first task of the planning staff, after "school" is out, will be to survey the present methods of "customer data processing," as now carried out in Hydro's regional and rural operating areas throughout the province. This includes billing, receivables, statistics and the many other aspects of information the Commission is required to handle or have available in regard to customers.

According to the present schedule, the graduates of the planning class will move across Ontario during July this year, seeking such information in the widespread Commissions operations. "Operation Survey" will take in regional and rural area offices, and the co-operation of the managers of these offices has been enlisted. These managers were asked to give thought to the exceptions that arise in the normal routine, in order that the planning staff may be supplied with complete and accurate information.

At the annual Area Managers' Conference in February, Mr. Thomas painted a word picture of what might be expected. He said that the system Hydro intends to use is not based on the thought that the machine (UNIVAC II) will be able to answer any question posed at random. Instead, it will be a "production-line" machine, and the system will be so planned that the computer will deal with each of Hydro's data processing functions in turn, and at a scheduled time.

"How do we propose to use this equipment, and how are we going to go about applying it? First, we will tackle the so-called 'bread-and-butter areas' — the ones where we have a large volume of data to be processed on a highly repetitive basis — such things as payrolls, stores records, billing, and so on.

May Control System Operation

"As we gain skill and knowledge in the use of this tool, we will get into the area of what Walt Disney might call 'Frontier-land,' but our Davy Crocketts will be armed with pens rather than long-barrelled rifles. To do a bit of crystal-gazing, it is not too much to expect that, within the next 10 years, a machine or machines of this nature will be controlling the operation of the power system on a minute-to-minute basis. The techniques of linear programmings may be very well used to determine where an area office should be located, its size, and so on."

Under the present system, when a "Hydro" meter has been read by either a meter reader or the customer who marks his card, billing calculations must then be made. When such meter readings are in the hundreds of thousands, there is much routine and monotonous work for clerks. UNIVAC II will assume this routine task.

"The records maintained by the system will have information sufficient to enable the machine to estimate a meter reading. Similarly, it can check a meter reading. Of course, where any changes were made, or where readings were estim-

(Continued on page 28)



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THIS intent group of Ontario Hydro employees, front row, left to right: William Riggs and Miss Norma Hinton; second row: Vincent Cranley and Duncan Graham; back row: Robert McHardy, are among the "students" who attended the first course.

CENTRE OF ATTRACTION

Gala ceremonies mark opening of new Iroquois shopping area

BRIGHT, warm weather greeted hundreds of village and district shoppers who were present on May 11 at ceremonies marking the opening of the modern two-block shopping centre in new Iroquois.

Senior officials of Ontario Hydro, members of the Iroquois clergy, Ontario and Canadian Government representatives, attending at the invitation of Reeve Lloyd Davis and the Iroquois Council, took part in the brief but significant ceremonies. The event heralded completion of an important phase of Ontario Hydro's rehabilitation program along the St. Lawrence River.

Hydro's First Vice-Chairman, W. Ross Strike, Reeve Davis and Allan Fisher of the Iroquois Board of Trade, smilingly co-operated in wielding the scissors for the symbolic ribbon-cutting, highlight of the ceremony.

Mr. Strike, in presenting greetings on behalf of Hydro Chairman James S. Duncan, expressed his appreciation of the high degree of co-operation accorded the Commission's rehabilitation staff by Reeve Davis, his council and the people of Iroquois during the relocation work.

"We at Ontario Hydro have had the greatest co-operation in all respects," Mr. Strike said, "and I believe we can truly say that, from what we see here today, we have translated a dream into a reality.

"It is very difficult to be switched suddenly from the old and the familiar to the changed and the new. I am sure that, as time goes on, you will become increasingly proud of your attractive, new community."

Iroquois merchants, who recently moved to the new centre from their former business premises in the old village, marked the official opening by holding a three-day sale which concluded Saturday. For children who attended with their parents, the merchants provided paper hats, balloons and candy, adding to the gala atmosphere of the opening.

Comprises 24 Stores

The new shopping centre — comprising 24 stores and three offices — is steel frame construction. The exterior is of buff-colored brick, with the attractive fronts featuring alu-

INAUGURATION CEREMONIES WERE HELD IN THE LARGE PARKING AREA ADJACENT TO THE NEW SHOPPING CENTRE.



minum and glass. Ceilings in the selling areas of the stores are 11 feet, three inches high.

Special observers at the opening ceremonies were some 50 visiting press, radio, television and motion picture representatives who toured the St. Lawrence Power Project and other facets of the rehabilitation work earlier in the day, arriving at Iroquois in time to witness the opening.

A holiday atmosphere, aided by colorful decorations and the presence of the St. Lawrence High School Band of Cornwall, predominated during the program for which officials and guests were seated on a special raised platform situated in the center of the parking area.

Reeve Davis, acting as master of ceremonies, told the large audience that the people of Iroquois would be forever grateful to Ontario Hydro for what it had done for the village. "Looking back just a year or more, we all recall that there was apprehension, concern and even some bitterness as we found ourselves in the midst of a tremendous upheaval. Hydro has kept its promise in every way, and when we realize what we are doing today some of our earlier problems seem almost trivial. We are confident of a great future."

Dedication

Rev. A. D. McLellan, Minister of Knox Presbyterian Church in Iroquois, pronounced the invocation and Rev. Father W. L. Terrion, Parish Priest of St. Cecilia's Roman Catholic Church, Iroquois, dedicated the new centre.

Praising Ontario Hydro for what he called "a marvellous job," A. C. Casselman (M.P., Grenville-Dundas) remarked that the people of Iroquois, together with Reeve Davis and the members of council, had co-operated fully.

"I know the people of this district very well and I know the problems that were bound to come up in relocating a community over 100 years old. I saw troubles and I saw them gradually overcome as the result of co-operation on all sides."

Fred Cass (M.P.P., Grenville-Dundas) added his congratulations to both Hydro and the reeves and councils of Iroquois and Matilda Township. The new centre, he said, would play an important part in the future of Iroquois.

Other platform guests besides those mentioned were: Hon. Ray Connell, Second Vice-Chairman, Ontario Hydro; D. P. Cliff and Lt.-Col. A. A. Kennedy, Ontario Hydro Commissioners; Rev. G. F. Dangerfield, Minister, Iroquois United Church; Rev. Ralph W. Smith, Rector, St. John the Baptist Anglican Church, Iroquois; Gordon Mitchell, Director, St. Lawrence Power Project, and Kenneth Candy, Ontario Hydro architect. —*by Gary Smith.*



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IROQUOIS' modern shopping centre, comprising 24 stores and three offices, is of steel frame construction with an attractive exterior of buff-colored brick. Here painters touch up the store-front canopy.



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MUTUAL co-operation, which made completion of the shopping centre possible is symbolized by the participation of, left to right: Allan Fisher, Chairman, Iroquois Board of Trade; W. Ross Strike, Hydro's First Vice-Chairman, and Reeve Lloyd Davis in the "ribbon-cutting.

CAPITAL EVENT



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IN THE conference room of the new building, several guests, including C. L. Mylks and H. W. Little, Brockville; Dr. R. A. Patterson, Kemptville; Henry Walter, Brockville; J. G. Baldwin, Lindsay; C. G. Wilby, Delta; F. C. Curry, Brockville; J. W. Davidson, Chalk River, and W. J. Tooley, Westport, inspect a large mural of the St. Lawrence Seaway and Power Project described by their comely guide Miss Liliane Lecours (right).



Open House tours inaugurate Hydro's new Eastern Region headquarters at Ottawa

MARKING the official opening of their handsome new headquarters building at 495 Richmond Rd., Ottawa, Manager O. S. Luney and members of the staff of Hydro's Eastern Region proudly played host at a recent Open House event.

Guests at the festivities included several representatives of municipal Hydro utilities in the area embraced by the Eastern Region; employees and their families; representatives of civic groups, the O.M.E.A. and A.M.E.U. Representing the Commission were First Vice-Chairman W. Ross Strike, Commissioners Lt.-

◁ STAFF members and their families also attended the open house. Mr. and Mrs. Frank White arrive at the main entrance where F. L. L. Hunt (left) and R. V. Morris (holding door), Security Supervisors, and C. J. McCallum, Security Guard, were on duty.



◁ LOCATED on Richmond Rd. in Ottawa, the new building is the third regional headquarters completed by Ontario Hydro in recent months. Two buildings of similar design are in service at Hamilton and North Bay. A fourth structure is being built at Belleville.

Col. A. A. Kennedy and D. P. Cliff and A. W. Manby, General Manager.

Highlighting the event was a tour of the two-storey building with staff members acting as guides. Informal receptions concluded the afternoon tour for municipal representatives and also the evening gathering for more than 200 employees and their families.

Recalls Formation

Welcoming the guests at the conclusion of the evening tour, Mr. Luney recalled the formation of the Eastern Region 10 years ago, with headquarters then located in Toronto, Mr. Luney traced the growth of the regional organization from that point to the eventual establishment of modest quarters at Ottawa in April, 1949. That same year, the staff moved to larger quarters vacated by the Ottawa Hydro-Electric Commission), but continued expansion necessitated the construction of a permanent building, he said.

"We can be proud of the expansion of our region over the 10 years of its existence," concluded Mr. Luney. "And I am certain we must all be happy with our new office building, working conditions, and excellent parking accommodation."

Introducing Commissioner Kennedy to the employees and families present, Mr. Luney commented that Col. Kennedy had been kind enough to return for the "evening performance, after viewing the matinee."

Hydro Family

During his brief remarks, Col. Kennedy told the group that the phrase, "Hydro family," had a real meaning to him. It had been his fortunate experience, since his appointment to the Commission, to travel throughout the province, and to encounter this universal family spirit. It was a dedication, which found its only parallel in military service — a veritable ideal of service and sacrifice, declared Col. Kennedy.

"You are privileged," the Hydro Commissioner said, "to help supply the most essential commodity there is today . . . electricity. We can build buildings, but a building is only as good as the people who work in it. I know that, as in the past, you will continue to see that our all-important work is done, and done well."

Two-Storey Structure

The new headquarters of the Eastern Region, viewed appreciatively during the "Open House," is both beautiful in appearance and utilitarian in construction. The L-shaped building, with its two storeys and a basement, was designed by Ontario Hydro's architects and erected by the Fuller Construction Company of Ottawa.

With an overall floor space of 35,000 square feet, the new premises have considerable flexibility, enabling office floor space to be altered to meet changing requirements. These alterations can be accomplished quickly by means of movable metal partitions, and the lighting and interior services are

(Continued on page 20)

designed to function efficiently, regardless of the arrangement of the offices.

The exterior of the new headquarters is of buff-colored brick, with stone facing over the entrance. Large double-glazed windows ensure the maximum of insulation and natural lighting. Interior features include recessed fluorescent lighting and a harmonious color scheme. The power and communication facilities throughout the structure are contained in an under-floor duct system. A gravelled parking lot provides space for 92 cars.

In common with the other eight regional offices of Ontario Hydro, the Eastern Region has experienced a phenomenal growth. It now serves 40 municipalities, 11 rural operating areas, and 23 direct industrial customers. Peak loads for December, 1956, totalled 332,900 kilowatts, an increase of 257 per cent over 1948 — the first full year of operation. Similarly, the number of customers served directly and indirectly by the region by the end of last year was 152,566, an increase of 161 per cent over the total of 58,403 at the end of 1948. In the areas administered by the Eastern Region through the rural operating area offices, Ontario Hydro has 6,012 miles of rural line and is serving 48,308 rural customers, representing increases of 94 per cent and 155 per cent respectively over 1948 figures.

"In a special sense," Mr. Luney said, "this regional office of which we are so proud is not just *our* new home; it is the new home as well of all the customers in the region, who, after all, are 'shareholders' in our great public enterprise. When a customer steps through the doors of these offices, he is entering his own domain — part of the structure of service to the public and for the public built over the past 51 years upon the vision of men who saw in the waters of Ontario the future of our province." —*by Horace Brown.*



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J. F. WOODCROFT, regional Operating Superintendent (left) describes the Eastern Region's power supply facilities for a group of visitors, including: J. H. Page, Renfrew; J. R. Claughton, Ottawa; W. W. Beal, Renfrew; W. G. Ward, Chats Falls; Miss Joyce Ault (guide); Mrs. M. L. Walker, Renfrew; C. S. Morgan, Yankleek Hill; M. H. Howat, Arnprior; Frank White, Ottawa.



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DURING their tour of the new building, members of this Ontario Hydro party, left to right: Commissioners Lt.-Col. A. A. Kennedy, D. P. Cliff and W. Ross Strike, First Vice-Chairman; J. W. Young, Eastern Region's Consumer Service Engineer, and A. W. Manby, General Manager, witnessed a demonstration of firefighting equipment by Douglas Campbell, R.O.A. lineman.

FOTO-NEWS



RECEIVES PRESIDENTS' CITATION - Amid enthusiastic applause, W. Ronald Mathieson, Secretary-Treasurer of the A.M.E.U. for the past 10 years, was honored with the presentation of the Presidents' Citation at the recent A.M.E.U. Past Presidents' Night dinner. Presented by Immediate Past President E. A. Washburn (left), the framed citation was signed by the 10 association presidents with whom Mr. Mathieson has served, and commended his "efficient and devoted service," and his contribution "to the prestige and influence of the association."



CHATHAM P. U. C. MANAGER HONORED - R. S. Reynolds, Manager and Secretary of Chatham Public Utilities Commission for more than 28 years (right) was honored by the Association of Municipal Electrical Utilities (of Ontario) at the annual Past Presidents' dinner in Toronto with the presentation of an honorary membership in the association. A prominent citizen of Chatham, particularly in athletic and hospital circles, Mr. Reynolds was President of the A.M.E.U. in 1938, and has served as a member of the association executive and on many other committees on numerous occasions. The formal presentation was made by a prominent representative of a neighbor utility—J. Clark Keith, former General Manager of Windsor Utilities Commission and now a consultant to the Windsor Commission. Mr. Keith, who served as A.M.E.U. President in 1949, shares with Mr. Reynolds the common distinction of having received his primary and secondary education at Smiths Falls, Ontario. Mr. Reynolds, who graduated from Queen's University, Kingston, in both electrical and mechanical engineering, joined the staff of Ontario Hydro after graduation, and was employed in several capacities until his appointment by Chatham P.U.C. as Manager in 1929. The framed A.M.E.U. honorary membership scroll, the 22nd presented by the association, was accompanied by a silver bowl, while Fred A. Clark made a presentation on behalf of the employees of Chatham P.U.C. ■



VISITORS' GALLERY

Ontario Hydro's new Information Centre equipped to handle large groups of sightseers who visit the famed international St. Lawrence Power Project

BY GARY SMITH

ONTARIO Hydro is playing host to thousands of visitors and guests during their inspection of a major Canadian tourist attraction.

This summer's visitors to the St. Lawrence Power Project are being greeted by Commission guides in a brand new Information Centre before viewing the project itself. The new centre, containing motion picture facilities, maps, photographs and other material for briefing sightseers, was opened early in April. It is handling the main volume of tourists along with a smaller centre opened in the spring of 1956, and now reserved solely for scheduled tour parties.

HYDRO Information Officer Charles MacIntosh (second from right) describes the St. Lawrence Power Project for a group of "sidewalk superintendents" viewing work in the powerhouse area from the vantage point of this 25-foot, Bailey Bridge lookout platform situated adjacent to the new Information Centre.

The St. Lawrence Power Development, consisting of two adjoining powerhouses, two ancillary dams farther upstream and numerous associated construction and excavation projects, drew some 340,000 visitors in 1956. But a comparison of figures for January, to May 31, 1957, with those of the same five-month period a year ago shows a substantial increase in the number of visitors.

Spiralling tourist interest in the project was envisaged by the Commission after last year's heavy influx of visitors. The decision was made at that time to construct the new centtre.

Situated at the main powerhouse lookout on old Highway No. 2 on the outskirts of Cornwall and some two miles west of the international Roosevelt Bridge, the new building contains an auditorium 53 feet long and 26 feet wide, a reception lobby and washrooms.

Bus Tours

An adjacent parking area can accommodate 200 cars, and it is from here that buses leave regularly, on a half-hour schedule, conveying visitors to the powerhouse area for a first-hand view of the adjoining international structures.

The new centre is equipped to provide information on an almost "production-line" basis. One interesting feature is a six-minute, color motion picture which shows, with animated pictures, the various structures of the completed project; how engineers have diverted the flow to make construction possible, and, finally, the contribution which the new power development will make to Ontario's booming economy. This sound film, together with maps, color slides and photographs, enables the Commission's guides and tour leaders to orient the visitor before viewing the intricate pattern of actual construction.

The casual visitor motoring into the construction area, either from the east or the west, is informed of his position by two large highway billboards, one at either end of the work area. Each contains a map of the construction area, and indicates points of interest.

These maps are situated on "U"-shaped turn-offs from the highway, enabling visitors to drive in and park while they become familiar with the construction area. Elsewhere, familiar, red Ontario Hydro road signs indicate points of special interest - where a town is being moved, a dyke built, or, as an added examble, where an excavation program is underway.

(Continued on page 24)





△ INSIDE the new centre, which is designed and equipped to provide information for a growing number of casual visitors viewing construction work this year, these tourists inspect the varied phases of the St. Lawrence development as depicted in these large photos.

◁ BUSES leave every 30 minutes from the new Information Centre west of Cornwall on tours of the powerhouse area. Public interest in the huge project is manifested by the increasing number of visitors this year.



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WINDING up their recent, fast-moving tour of the project, Lady Eden (right), wife of Britain's former Prime Minister, Sir Anthony Eden, and Lady Garner, wife of the British High Commissioner for Canada, examine a St. Lawrence model in the information centre.

It's difficult to keep a full tally of the throngs of people who have visited the project to date. Many tourists have stopped for only a brief inspection from the main powerhouse lookout without contacting or identifying themselves to Hydro personnel. But Commission guides are not boasting when they point out that the visitors' book contains many of the names one would find in a World's "Who's Who."

The Right Honorable Vincent Massey, Governor-General of Canada, tops a long list of notables who visited the project during 1956. His Excellency expressed keen interest in all phases of the work.

Members of the International Joint Commission, including Gen. A. G. L. MacNaughton, Canadian Chairman, and the Hon. Len Jordan, United States Chairman, toured the power project and the seaway during the fall.

One of the largest groups to visit the project consisted of the members of the Ontario Legislature. The party, headed by Hon. Leslie M. Frost, Prime Minister of Ontario, included members of the Executive Council and several deputy ministers.

In September, 1956, some 40 members of the Metropolitan Toronto Council, lead by Chairman Fred G. Gardner, and Controller Ford Brand, spent a day touring the various construction operations.

Already this year several distinguished visitors, including Lady Eden, wife of Sir Anthony Eden, former British Prime Minister, accompanied by Lady Garner, wife

DURING the last week of May this year some 3,000 visitors toured the development. Scheduled tour parties invariably display particular interest in the spectacular house-moving operations during their visit to areas which will be affected by the 1,640,000-kilowatt project.

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of His Excellency, Sir Saville E. Garner, British High Commissioner for Canada, have toured the project. Following her visit, Lady Eden, who with Sir Anthony, had been a guest of the Governor-General of Canada, the Rt. Hon. Vincent H. Massey, at Rideau Hall, Ottawa, extended personal thanks to Mr. MacIntosh. In her letter, Lady Eden expressed pleasure in being "able to make the expedition," and described the St. Lawrence Power Project "as a fascinating and impressive sight." A few days prior to the visit of Lady Eden and Lady Garner, General Sir Charles Keightley, who commanded British and French forces during the Suez crisis last year, and Lady Keightley, made a tour of inspection.

During the year visitors came from every province in Canada and almost every state of the United States. Officials and tourists from Britain, Germany, Holland, Italy, Australia, India and Pakistan were in the van of the thousands of people who arrived in Cornwall weekly to see the work for themselves.

For those who visited the project last year and who have repeated, or intend to repeat their tour this summer, there are some very noticeable and highly significant advances. One fascinating, new phase of the work has already been launched. In April of this year, flow down the famous Long Sault Rapids was halted and the water diverted through the south channel of the river.

While this operation was undertaken to permit construction to continue on the Long Sault dam, the "drying-up" process attracted extra hundreds of visitors — including many geologists and historians.

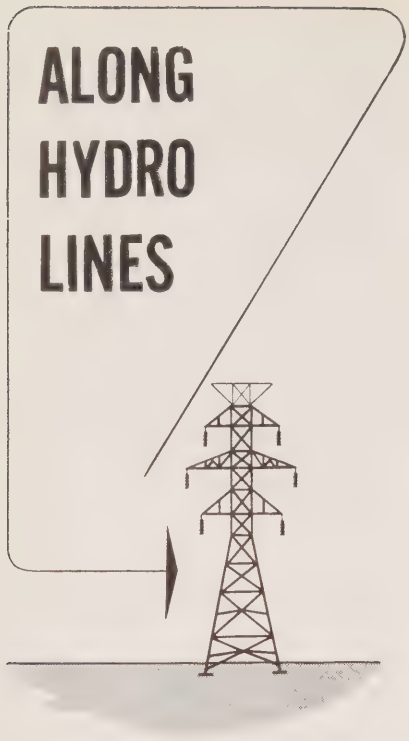
Elsewhere, concrete placing on the two adjoining powerhouses has long since passed the half-way mark with some 595,000 cubic yards of a total of 1,000,000 cubic yards having been placed by the end of May. The rehabilitation program will be virtually complete by the end of 1957, with more than 500 houses moved and most shopping centres, schools and churches finished and open. ■



△ ANOTHER distinguished visitor in recent weeks was General Sir Charles Keightley, Commander of the British and French forces during last year's Suez crisis, and currently on a lecture tour of North America. Sir Charles (second from right) was accompanied by Mr. MacIntosh, Capt. A. K. Casselman, Canadian Army conducting officer and Lady Keightley.



◁ SOME 300 members of the Canadian Manufacturers' Association formed one of the largest groups to visit the project in recent months. Here the nine-bus C.M.A. cavalcade makes a stop on the 4,500-foot steel-cell downstream cofferdam to permit the visitors to view powerhouse construction progress.



Appointed Assistant Director of Engineering

H. P. Cadario, formerly Stations Engineer with Ontario Hydro, has been named Assistant Director of Engineering. Mr. Cadario is a native of Kenora and a 1938 graduate of Queen's University in electrical engineering. He joined the construction staff of Ontario Hydro after graduation, and later was transferred to the Engineering Division. He has been associated with that Division continuously, except during his wartime service with the R.C.E.M.E. as second-in-charge of telecommunications at National Defence Headquarters in Ottawa. He later saw action in the Pacific with the American and Australian forces. In 1948 Mr. Cadario was appointed Senior Project Engineer and served in this capacity until his appointment as head of the Stations Department in 1953.

Succeeding Mr. Cadario as Stations Engineer is W. E. Taylor, formerly Senior Project Engineer.

Wheatley Arrears Position Praised

Wheatley Public Utilities Commission has received a letter of commendation from the Manager of Ontario Hydro's Western Region, R. M. Laurie. Mr. Laurie said that his attention had been drawn to the local commission's excellent arrears position following a report by the consumer service staff in his region. "It is indeed remarkable and certainly commendable that a utility of your size has been able to reduce outstanding arrears to the amount now shown on your books," the Regional Manager wrote. "This excellent arrears position is certainly due to the firm collection policy adopted by your commission and the admirable carrying out of this policy by your staff, particularly Miss Mary Maxwell. There is no doubt that this system, now that it is firmly established with your customers, will stand you in good stead during the coming years," Mr. Laurie concluded.

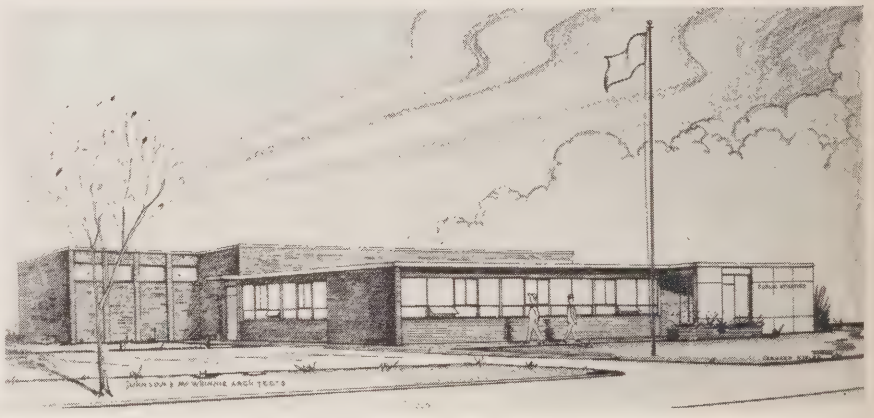
Peterborough Seeks Third Line

Erection of a third power line into Peterborough from the Ross L. Dobbin T.S. was approved at a recent meeting of the Peterborough Utilities Commission. The local commission has entered an agreement with Ontario Hydro to build a line from the west of the city to the substation on High Street.

Engineers' Registrations Show 50 per cent Increase

Acceptance of some 600 applicants for registration in the Association of Professional Engineers of Ontario during the first quarter of 1957 has increased the associations's membership to 15,900, it was announced recently by T. M. Medland, executive director.

A total of 950 applications for registration were received during the three-month period—about 50 per cent more than any other similar period in the 35-year history of the association.



NEW UTILITY BUILDING

Construction of a new Sandwich West Township Utilities building, depicted in the accompanying architect's sketch, will be started in the near future. The modern $130,000 office and service centre is scheduled for completion before the end of the present year. Of brick and block construction, with some stone work in front, the structure will have an area of approximately 9,700 square feet, and will be situated on Huron Line south of Grand Marais Road.

APPOINTED DIRECTOR OF CONSTRUCTION



P. G. CAMPBELL



J. E. STARK

ONTARIO Hydro has announced the appointment of P. G. Campbell, P.Eng., as Ontario Hydro's Director of Construction, effective June 1, 1957. Mr. Campbell succeeds J. E. Stark, P.Eng.

Previous to his new appointment, Mr. Campbell was Construction Engineer, Generation Department of the Construction Division. Born in Halifax, N.S., he graduated from Nova Scotia Technical School in 1943 with a degree in civil engineering. Following graduation he enlisted in the Canadian Navy, serving until December, 1945. In 1946 he was employed as Survey Engineer, Department of Mines and Resources, Ottawa. He commenced his Ontario Hydro service as Junior Engineer in February, 1947, and then served successively as Assistant Divisional Engineer at Stewartville and Assistant Resident Engineer of the Otto Holden Generation Station. In January, 1952 he was loaned to Sherritt Gordon Mines Ltd. as their Resident Engineer on a power development at Lynn Lake in Manitoba. This was followed by further service with the Construction Division on the Sir Adam Beck-Niagara Generating Station No. 2 project until January 1, 1954 when he was appointed Resident Engineer—Manitou Falls. In May, 1954 he was promoted to Project Manager — Manitou Falls. On the completion of the four-unit stage of that project, he was transferred to Toronto, assuming the position of Construction Engineer - Generation. Since that time he has been responsible for the construction activities of generating projects, principally in the Northwestern Region.

Mr. Campbell is a member of the Association of Professional Engineers of Ontario, and also of the Engineering Institute of Canada.

Mr. Stark, who has been named as a consultant to the Commission, has had a wide variety of construction experience since he first joined the Ontario Hydro staff in September, 1919. Since that time he has earned the esteem of a large group of Commission colleagues, and has become widely-known in the construction and other fields.

A native of Plumstead, Kent, England, Mr. Stark was educated in local schools and attended Woolwich Polytechnic School on a scholarship. During the First World War, he served with the 127th Battalion CEF at Canadian G.H.Q. in London and later went to France with the 2nd CRT.

Following the war, he was named Construction Office Manager, and in 1925 he was given the post of Project Officer in charge of structural and building work both at Head Office and in the field. From 1928 until 1932, he served as Construction Superintendent at the Leaside Transformer Station and at other projects. In that year Mr. Stark was appointed Senior Works Engineer, Stations and served in that capacity until 1949, when he was appointed Assistant Engineer in the Stations Department. In 1952 he headed the Station Construction Department and two years later became Assistant Director of the Construction Division, succeeding David Forgan on his retirement as Director.

Mr. Stark is a member of the Association of Professional Engineers of Ontario and the Engineering Institute of Canada.

Hydro Chairman Heads London House Group

Hydro Chairman James S. Duncan has been unanimously elected Chairman of the London House Association of Canada, it was announced recently. The Association's chief purpose is the maintenance of London House, a residential and cultural centre for Commonwealth students in London, England. The association was established in 1951 to assist Canadians going abroad for study, particularly at the post-graduate level. Of the 284 male students accommodated, usually 30 are Canadians. Because of the popularity of London House, and the increasing demand for facilities, the Association is now undertaking a fund-raising campaign. Canada's Governor General, Rt. Hon. Vincent Massey, is Patron-in-Chief of the Association, while General H. G. D. Crerar, a former Ontario Hydro engineer, is Vice-Patron-in-Chief.

TOMORROW'S PATTERN

(Continued from page 15)

ated, this would be indicated to you by a suitable notation on the billing register or recap sheet."

The new system will be installed on a step-by-step basis. Area office staff will be given information that will enable them to understand the reasons for this change. The planning staff will be given help in the installation of new equipment in the area offices. Rural area personnel will be trained to integrate this equipment into the system.



"How about taking my problem to the office and running it through Univac for me?" (Courtesy of "Around the System," Consolidated Edison.)

Remington-Rand has placed great importance upon co-operation with Ontario Hydro in the undertaking. A full-time resident representative, Norman Cotterell, who is an executive of the company, has been appointed to work with Hydro in integrating UNIVAC II into the utility's operations. He is one of the relatively few persons with experience in installing such a system. Remington-Rand will also assign other full-time personnel to assist Hydro's first efforts in this new area.

Some time this summer, the survey phase of the planning operation will swing into action. The survey staff will be organized into teams, and several teams will operate simultaneously in a Hydro region. It is anticipated that a team will spend less than a week in each area office, recording in detail the existing processes.

Then, in April or May of 1958, the long and careful preparation and planning for office automation at Ontario Hydro will be over.

UNIVAC II will be integrated into the system.

It will not be the end. Rather, it will be the beginning. ■

TORONTO HYDRO LOAD DOUBLED

DESPITE the fact that it no longer serves York Township or Swansea and Forest Hill Villages, the Toronto Hydro-Electric System has more than doubled its peak load since 1933.

This fact was emphasized by Chairman Bert Merson in reviewing utility operations for 1956 during the annual dinner tendered in honor of the Toronto Board of Control and City Council. When the Toronto System handled electrical services for these communities and also city and Leaside customers, 24 years ago, the peak load was 225,000 kilowatts and customers totalled 185,000. Today, Toronto Hydro serves 200,000 customers in Toronto and Leaside (representing a total of nearly 750,000 people) and the peak load is now more than double—approximately 560,000 kilowatts.

Present at the friendly and informal gathering were Mayor Nathan Phillips, Toronto; Mayor Charles Hiscott, Leaside, members of the Toronto Board of Control and the Toronto City Council. Vice-Chairman John McMechan presided as master of ceremonies.

Mr. Merson dealt at length with the important role the new Eglinton Control Centre would have in utility operations.

Mayor Hiscott voiced his congratulations to the Toronto Electric Commissioners on the year of progress indicated in Mr. Merson's address, while a vote of thanks was extended by Alderman May Robinson.

ANNOUNCE CHANGEOVER SCHEDULES

SCHEDULES for changeover to 60-cycle frequency in the municipalities of Ingersoll, Tillsonburg, Port Burwell, Norwich, Otterville and surrounding rural areas have been announced by Ontario Hydro. The following changeover periods are, however, subject to change should conditions warrant: Ingersoll Public Utilities Commission — last three weeks July, 1957; Tillsonburg Public Utilities Commission — last week July, 1957, to second week of September, 1957; Tillsonburg Rural Operating Area (Tillsonburg Distribution Station) — last three weeks September, 1957; Aylmer R.O.A. (Vienna D.S.) — last week September and first week of October, 1957; Port Burwell Public Utilities Commission — first week October, 1957; Tillsonburg R.O.A. (Ostrander D.S.) — first two weeks October, 1957; Norwich Public Utilities Commission — third week October, 1957; Norwich R.O.A. (Norwich D.S.) — last two weeks October, 1957; Otterville Hydro System — last week October, 1957; Norwich R.O.A. (Otterville D.S.) — last week October and first week November, 1957.



COMPLETE FIRST AID COURSE

EAST YORK Hydro-Electric Commission played host to 17 of its staff members at a recent dinner marking completion of a seven-week first aid course.

Each of the employees received small framed certificates from the St. John's Ambulance Association signifying that they had successfully passed the necessary proficiency examinations.

In the accompanying photographs 14 of the 17 men who qualified are shown as they received their certificates. Above, left to right, John Atkinson, Frank Goodyear, Ronald Rasebeck, James Oliver, Norman Smith and William Low look on as Commissioner Norman Maughan (left) presents a certificate to Foreman George Chivers. Below Reeve John Allan (left) congratulates William Stewart while, left to right, William Hoyt, William Gavin, John Adamson, Russell Miles, James Balmer and John Irwin smile their approval.



A PARK WITH A PAST

(Continued from page 5)

the opposite end of a 1,200-foot mall leading to the monument will be a reception centre and restaurant.

The collection and restoration of U.E.L. relics goes on, and the Development Commission has opened a temporary museum in Morrisburg where visitors can view the assortment until such time as they are placed in the old dwellings, and the park is declared open.

The museum already contains hundreds of fine examples of early U.E.L. craftsmanship. Several beautiful examples of hand-made furniture have been cleaned and restored to their natural wood finish.

The collection also includes the unusual galvanized iron bathtub used by Captain Alexander Farlinger, the first skipper to take the river steamer Lord Elgin down the Long Sault Rapids in 1903. Its astonishing design would amaze and confuse the modern bathtub devotee.

Special Museum

Attractive hand-loomed bedspreads and coverlets, spinning wheels, butter stamps and molds, broad adzes, wooden spades, grain cradles and even an early version of the pressure cooker are only a few of the many other museum pieces in the assortment. A special museum building in the park will house the pieces remaining after the old homes are furnished, Commission officials say.

Long term plans are underway to make the Crysler Park and the scenic drive rank with such Ontario beauty spots as the Niagara Parks system. Under a 10-year reforestation plan for the whole 3,500-acre park area, 100,000 seedlings have already been planted in Crysler Park alone.

Thus, when the St. Lawrence Power Project and the Seaway are completed in 1960, one of the richest stories in Canada's history will be preserved and safeguarded for the future. ■



NIAGARA GLAMOR

ONTARIO HYDRO News

JULY-AUGUST
1957

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RAPIDE PLAT BYPASS

ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
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JULY - AUGUST, 1957

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CANADA'S 90TH ANNIVERSARY

For the first time in the nation's history, a reigning monarch will open Canada's Parliament. The presence of Her Majesty the Queen at the first session of the new Parliament will affirm the fact that she is indeed the Queen of Canada, thus emphasizing the nation's sovereign status within the Commonwealth framework.

Then, too, Queen Elizabeth's visit will lend added lustre to the observance of Canada's 90th anniversary, which has focused world attention on this country's development and achievements since attaining the status of nationhood.

Undoubtedly the passing of the British North America Act on July 1, 1867, was a climactic event in Canadian annals. For on that historic day the divergent economies and interests of a small band of struggling colonies were drawn together under the banner of the Dominion of Canada. It would require several pages to enumerate the progressive steps that have been taken since that time. One of the most striking changes has been Canada's emergence as a major industrial nation. In 1871, four years after Confederation, there were only 188,000 employees receiving wages totalling $41 million from manufacturing industries whose gross product was valued at $222 million. By 1956, manufacturing production had reached a gross value of $21,341 million. In 1955 (the latest year for which figures are presently available) manufacturing provided employment for 1,299,000 Canadians, while payrolls totalled $4,111 million.

Rich in mineral and forest resources, Canada today ranks first among the producers of newsprint, nickel, asbestos and platinum. Furthermore she is fast approaching the day when she will quite likely lead the world in the production of uranium — a vital commodity in the field of nuclear development. In her output of aluminum and wood-pulp Canada stands second in the global market and fifth in copper.

How has Canada attained this dominant economic position with a population that even now totals approximately 16,344,000—only six one-thousandths of the world's population? It is both gratifying and significant to note the general agreement among economic analysts in assessing the outstanding contribution that electricity has made to Canada's phenomenal development. Observing that the country's installed capacity in hydro-electric developments had reached 18,356,000 horsepower by the end of 1956, the June, 1957 edition of The Royal Bank of Canada's "Monthly Letter" declares that the expansion of Canadian industry "has been based largely upon hydro-electric power."

But with all our natural advantages and our acknowledged high standard of living, it is fortunate that many Canadians appear to recognize the wisdom of perpetuating and emulating the adventurous spirit, the hardihood and tenacity of purpose manifested by our forefathers. These qualities are still of prime importance in maintaining and strengthening the envied and respected position we occupy today.

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COVER SHOTS

Reflecting the charm of eastern Ontario, our front cover provides a unique view of Morrisburg, which we salute on Page 6 of this issue under the title of "Butter, Bricks and Burs." The Scandinavian freighter, "Tronstad" underlines the community's proximity to the St. Lawrence River and the busy Rapide Plat Canal.

Although not as famous as the St. Lawrence, the Black River can boast of some equally scenic spots, such as Cooper's Falls, near Severn, Ont., depicted on our back cover.



"POWER HORN"

Not a "horn of plenty" in the accepted sense of the word. It's actually formwork for the draft tube of a 19,100-kilowatt generating unit at Ontario Hydro's Cameron Falls Generating Station on the Nipigon River. Thus it will help to "reap another power harvest" for electrical customers in Northwestern Ontario when the new unit is completed in 1958, and the capacity of the plant is raised to 76,700 kw. The photograph shows the draft tube form in position on the concrete "floor pad" with construction workers preparing for the "heel pour" around the form.

"HOT" LINE TECHNIQUE



Hydro's enterprising Line Maintenance staff perfects method of changing hardware on live, high-voltage transmission lines

BY DON WRIGHT

LIVE LINE work on high voltage circuits ranks high in prestige among the men who maintain the many thousands of miles of transmission and distribution lines in the vast Ontario Hydro system since it demands the ultimate in skill and experience. Although Hydro's interest in live or "hot" line maintenance dates back to the early 1930's, and considerable work has been carried out under live line conditions, the development of specialized tools, line hardware and procedure continues to increase the scope and value of this maintenance technique.

The chief advantage of live line maintenance, of course, is continuity of service, and this can only be achieved, in the case of radial lines, by conducting repairs and replacements while the line remains energized.

The first large-scale application of high-voltage, "hot" line methods on the Hydro system took place in the Northwestern Region in 1948 when extensive pole replacement

◁ A HYDRO motion picture photographer stands on an improvised platform to record the replacement of a malleable iron vibration damper with the new type of non-ferrous damper now in use.



△

WHILE changing line hardware, line crews also replaced several damaged insulators on live, 230,000-volt lines. Here a faulty insulator is being removed after the strain has been transferred from the insulator to the line tools.

was carried out on a 115,000-volt transmission line. Since that time, many power interruptions have been prevented by this technique, and "hot" line maintenance on 115,000 and 230,000-volt lines is now standard Hydro procedure. Damaged or defective insulators in strain and suspension positions are changed regularly, while cross-arms and the poles themselves are replaced without service interruption on wooden pole lines of all voltages from 8,000 to 115,000 volts.

Important Extension

To date, live line maintenance has been limited principally to these operations, but Hydro crews are presently engaged on a project, which not only represents an important extension to "hot" line procedures, but is likely to affect the design of transmission line hardware throughout the Hydro system. The project involves the replacement of ferrous suspension clamps (used to secure insulators to conductors) and torsional dampers (used in reducing the effect of high frequency mechanical vibrations) with non-ferrous hardware on a 230,000-volt double-circuit steel tower transmission line from Toronto to Burlington. Because of the importance of this 40-mile long transmission line, by which a power interchange is effected between Hydro's 60-cycle Ottawa River generating stations and plants feeding the Niagara Division of Hydro's Southern Ontario System, it was imperative that this work should be accomplished without service interruption.

The project was undertaken to obtain the benefits of the maximum capabilities of the transmission line, and its completion will postpone the necessity of a new line for several years. Engineers explain that the substitution of non-ferrous hardware will increase the load-carrying capacity of the conductor by about 50 per cent due to the reduction of heat loss from pulsating magnetic flux in the hardware.

More specifically, ferrous hardware limits the capacity of the conductor in the following manner: as the current alternates, so does the magnetic flux, and with the flow of eddy currents heat is generated at that point where the hardware encircles the conductor. The heat increases as heavier loads are applied to the line, and when the temperature of the conductor exceeds 194° Fahrenheit, annealing commences. Eventually the aluminum strands in the conductor will soften sufficiently so that the steel core alone is no longer strong enough to support the conductor under all conditions, and dangerous sagging will result. With non-magnetic, aluminum hardware, no such hazard exists and the load-carrying capacity is limited only by the size and type of conductor.

Preliminary Training

In "hot" line work, nothing is left to chance, and before the present project was launched every phase of the work was carried out, and repeated time after time until tools, hardware, methods and men had been developed and trained to a state of perfection. Under the experienced guidance of N. L. McKay, Line Maintenance Superintendent, and T. M. Campbell, Line Maintenance Supervisor, Hydro's West Central Region crews, under Foreman Wesley McAdam, developed their technique on a section of transmission line that was temporarily out of service. The same procedure was later followed by Toronto Region personnel, who are also participating in this unique "hot" line operation, under the direction of J. J. Durand, Line Maintenance Superintendent, and W. J. Palmer, Line Maintenance Supervisor, with Foreman Bruce

(Continued on page 4)



King in charge of the crews. The project is under the general supervision of T. J. Burgess, Line Maintenance Engineer, and his Head Office staff.

As the result of this preliminary, experimental field work it was possible to supply hardware manufacturers with detailed design specifications for clamps and dampers that would fulfill the following requirements: (1) include the use of non-ferrous parts to eliminate magnetically-induced heat losses; (2) be of simple construction to facilitate "unbuttoning," and (3) in the case of clamps, readily permit subsequent replacement of suspension insulators under "hot" line conditions. Several designs were submitted incorporating these features, and the ones selected are likely to set the pattern for much of this category of hardware used by the Commission in the future. This would speed up the replacement of clamps and dampers wherever the new hardware was in use, and whether or not the lines remained energized.

Standard Tools

Because the new hardware was designed specifically for ease of installation, it was necessary to devise only a minimum of small holding tools to work with it. Thus standard live line tools, with the new small tools, are being used on this project. During installation the damper is supported in the clamp jaws of a wire tong, and the bolts are tightened with a standard ratchet wrench. The new suspension clamps, similarly, are easy to install or remove. The clamp seat is held in position with a three-pronged holder, while the keeper and U-bolts are positioned and held together from above with a special spring-loaded holder designed for this particular job.

On the job the men work in groups of five—each crew consisting

◁ THIS West Central Region line crew is assembling a new suspension clamp on a live, 230,000-volt conductor. "Hot" line sticks and ratchet jacks support the conductor during this operation.

of a foreman, a groundman and three highly experienced linemen, who carry out the actual replacement from a point high on the tower itself. One of this trio positions himself on the arm of the tower, and with the use of a link stick and ratchet jack, raises the conductor and removes the strain from the clamp so that it can be opened. The old clamp is then removed, and the new one positioned and secured by two men standing on a level with the conductor on an 18-foot wooden ladder suspended from the tower arm. The same general procedure is followed in replacing torsional dampers.

Radio Communication

Radio communication is maintained between the line crews and the station operators at Leaside and Burlington so that the crews can be contacted before the line is returned to service in the event of an automatic outage. While it is a fact that accidents are more likely to occur during other types of line maintenance, it is nonetheless essential that personnel be carefully hand-picked for "hot" line work. Cool, methodical individuals, who are not likely to act impetuously to the possible detriment of their fellow crewmen, and who have the necessary understanding and respect for live line procedures, are selected for this job.

Since the Commission first became attracted by the economies inherent in live line maintenance methods it has carried out extensive research in an effort to perfect easily-manipulated tools that would permit safe contact with live conductors. Emphasis was placed on developing equipment for use on rural and sub-transmission lines in the range from 13.8 kv. to 44 kv., and for some years Hydro designed and manufactured its own "hot" line tools for this category of work. As interest in live line maintenance became more and more prevalent among utilities, the manu-

(Continued on page 33)

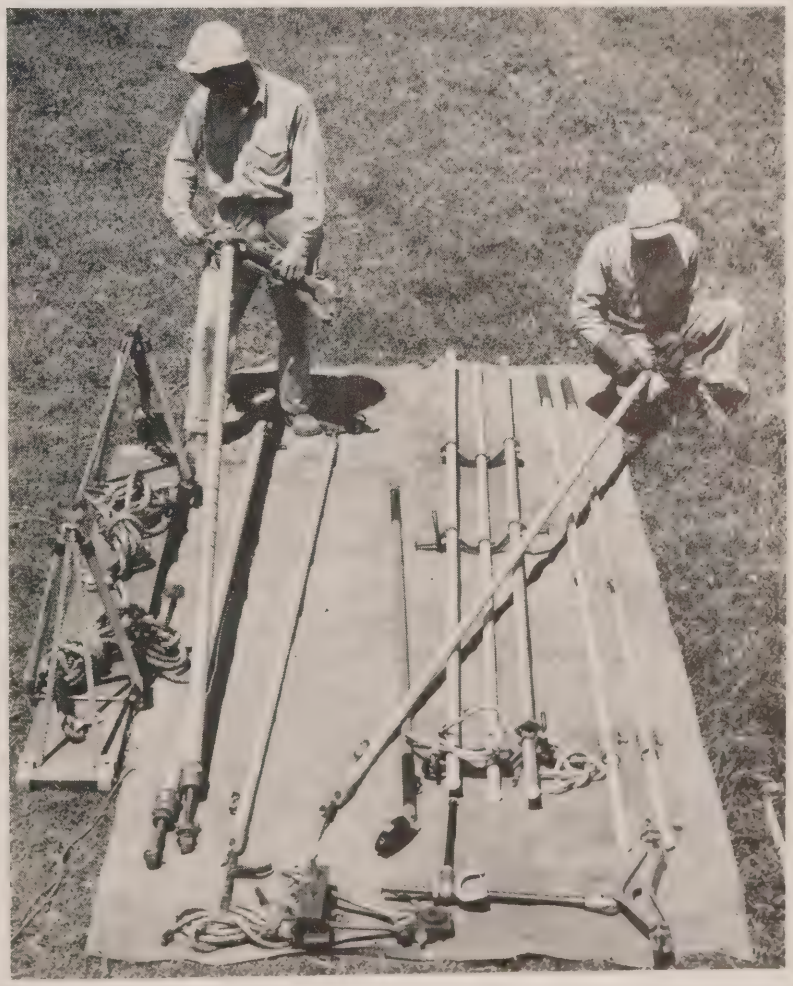


△

NEIL McKAY, West Central Region's Line Maintenance Superintendent (left), holds obsolete type of vibration damper (left) and suspension clamp (right), and discusses the modifications in the non-ferrous types held by Foreman Wesley McAdam.

TWO line crew members are fitting live line tools with the attachments necessary in replacing damaged insulators. The tools are laid out on canvas to prevent moisture absorption. Hydro periodically retests these tools for possible defects.

▽



By Rail and River

Energetic St. Lawrence community, Morrisburg

remembers the past and looks to the future

BY GARY SMITH



ALONG the rolling north shore of the St. Lawrence River, where the water slips over the *Rapide Plat,* there sprang up in the 1840's a bustling pioneer commerce that gave birth to the Village of Morrisburg.

One factor behind the appearance of the little hamlet was the decision by far-sighted officials to build a series of canals along the river so that ships might circumvent the treacherous rapids of the St. Lawrence.

True, the location was a favorite of the early boatmen and voyageurs, who, on trips upriver, would land at this spot to portage their goods past the rapids. But the construction of the Rapide Plat Canal—together with its two locks—was perhaps the major factor in the village's birth.

History books tell the story of how the first Rapide Plat Canal was completed in 1847, providing nine-foot navigation through the two locks in a canal some 3¾ miles long. Shallow-draft boats, manned by lusty, singing Habitant boatmen plied the canal for more than 50 years before the system was eventually widened and deepened in 1900 to its present 14 feet. The first canal and locks brought with them mill privileges and consequently, a generation of mill owners, merchants and residents. By 1860, the foundations of the little hamlet of Morrisburg were firmly established. In that year it was incorporated as a village, and as trade and commerce continued to grow along the St. Lawrence, Morrisburg kept pace.

Today it is a town-sized community of more than 2,000 people, rich in traditions still evidenced by literally dozens of stately, old brick and frame mansions that give proof of its early prosperity. Industrially static during recent generations, Morrisburg, however, looks to the future and the economic resurgence that its towns-folk feel is bound to come with the completion of the St. Lawrence Seaway and Power Project.

BISECTED by Ontario Highway No. 2, Morrisburg's present business section is destined for early relocation in a modern shopping centre, part of the new commercial area.

Traditions

Morrisburg was named in 1851 after Hon. James Morris, the first Postmaster General of Upper Canada, who was then living in Brockville. To show his appreciation of the compliment paid him by the little community, the honorable gentleman donated $100 with the request that it be used to purchase a bell for the town hall.

Since the village had no town hall at the time, the bell was hung in the existing West Public School building, the basement of which then served as a town meeting place. Later with the erection of a new public school, the bell was removed to the new building. In this structure—now owned by Morrisburg Hydro-Electric Commission — the Morris bell still hangs.

One important association which has existed since 1855 is Morrisburg's proximity to a railway line. For it was in that year that the Grand Trunk Railway launched operations on the line between Montreal and Brockville. This track, now part of the Canadian National Railways' main Montreal-Toronto line, increased Morrisburg's commercial activity, and added to its industrial potential.

The advent of the railway meant that the village had access to two important means of transportation —by rail and by river. J. Smyth Carter, in his book, "The Story of Dundas," tells of one Saturday in those early days when more than 60 horses were shipped from Morrisburg by ferry and railway. Butter, wheat and barley-laden wagons clogged the main street and drew crowds of buyers.

The butter trade, especially, was unbelievably large. During one month in the autumn of 1872, buyers for the English trade purchased 6,482 tubs of butter for which they paid Morrisburg area farmers some $130,000.



△ THIS window in Morrisburg United Church is typical of the charm and dignity found in many Morrisburg homes and public buildings.

Hydro-Electric Pioneer

While it was not until 1938 that Morrisburg entered into an agreement with Ontario Hydro to purchase electricity, the community was one of the first in eastern Ontario to produce its own hydro-electric power.

In this endeavor the St. Lawrence River and the canal system once more proved good friends to the growing community. In 1901 the village purchased, at a cost of $35,000, an electric generator and water wheel, and installed the equipment on the bank of the canal where a sufficient head of water was available to drive the generator.

This system developed about 200

(Continued on page 8)

kilowatts of power, sufficient for the village until 1934 when a 400-kilowatt diesel-operated generator was added to the plant. With the decision by the village fathers in 1938 to purchase power from Ontario Hydro, the diesel equipment was dismantled and moved out, but the earlier hydro-electric installation continued to serve the community.

The plant is still operated by the Morrisburg Hydro-Electric Commission although it is limited to use during the daily peak load period. Around noon each day Douglas Stitt, Superintendent of the Morrisburg Commission, arrives at the old powerhouse to "run-up" the ancient plant. The system is of the horizontal type with Allis Chalmers generator and belt drive. After more than 50 years of service it still delivers about 130 kilowatts.

Mr. Stitt, a wiry, active veteran of 26 years' service with the Morrisburg Commission, started his "Hydro" career with Ontario Hydro's Operating Department in Cornwall. The Chairman of the Morrisburg Commission is Edwin Jones, C.N.R. express agent in Morrisburg and an able public servant. The Commissioners are John Thompson and Reeve George E. Beavers, a local industrialist.

In 1956, Morrisburg Hydro-Electric Commission was serving 844 customers: domestic, commercial and power, and met an average load of 993.6 kilowatts. An indication of the gradual growth of Morrisburg's electrical load is the fact that in 1950 the utility was supplying an average load of 575.9 kw.

While Morrisburg's power requirements are expected to rise steadily, however, the pioneer Morrisburg power plant will end its usefulness soon. Completion of the seaway and power projects will obviate the need for a lock or canal at this point in the river. The village's hydro-electric installation will be dismantled, and the community will extend its present agreement with Ontario Hydro.

Industry

Morrisburg's industrial history appears to date from the year 1847 when an individual named Benjamin Chaffey opened a grist mill. Later Mr. Chaffey operated a business for the manufacture of lock gates — providing a large lumber market for surrounding farmers. By 1880, the village listed a foundry, a dairy utensil factory, a planing mill, a tinsmithy and a marble works among its industries.

The first steel rolling mill in Canada was constructed in Morrisburg in 1908 by the Canadian Sheet Steel Company. Employing some 300 people, this plant, unfortunately, operated for only about four years before being moved elsewhere. Morrisburg historians, however, list it as one of Canada's major industrial firsts.

A unique, dental-products manufacturing business, Beavers' Dental Products Limited pioneered in Canada in the manufacture of dental burs (or drills).

The only dental bur manufacturing firm in Canada, it finds a ready market for its product, exporting approximately 80 per cent of its output to the United States and South America. In addition, the company also manufactures tooth brushes, having acquired the Challies Tooth Brush plant at Morrisburg in 1940.

The firm is being relocated in a new plant on the northeast fringe of the town where more than 60 persons are employed in the two allied manufacturing operations.

Another modern, thriving industry in Morrisburg is that of the Kingston Dunbrik Co. Ltd., manufacturers of cement bricks for the building trade. In a two-year old, concrete block plant, the company uses semi-automatic equipment to manufacture cement bricks of various sizes and colors at the rate of 2,100 an hour. The plant employs 10 men.

At one time before the turn of the century, the village boasted three weekly newspapers. The oldest of these was the *Banner,* published by James Holden, an early resident whose name crops up continually in historical accounts of the village. The *Courier,* first published in 1863

ALTHOUGH the visitor can find many classic examples of early Canadian architecture in the quaint St. Lawrence town, the design of its 10-room public school is strictly 20th Century.





△

AN OIL TANKER, the Blue Cross, "locks through" the Rapide Plat Canal at Morrisburg. This lock system, along with the venerable generating plant (extreme left) of Morrisburg Hydro-Electric Commission, will disappear when the St. Lawrence Seaway and Power Project is in operation.

and the *Herald* which followed in 1874, were vigorous competitors. The *Leader*, a six-column tabloid, now published weekly in Morrisburg, is a direct descendant of the *Herald*, which ceased publication in 1890. Many Morrisburg readers today subscribe to daily newspapers from Cornwall, Brockville and Ottawa, but depend, still, on the *Leader* for news of local interest.

Industrial Promotion

Morrisburg is pursuing a vigorous and aggressive program aimed at exploiting its excellent industrial potential following completion of the St. Lawrence Seaway and Power Project. The Chairman of its Chamber of Commerce is the Rev. J. M. Allan, Minister of Iroquois United Church, a canny, forthright clergyman of Scottish extraction, who foresees a bright future for his community.

One factor supporting the wisdom of Mr. Allan's thinking is the location of the village itself. Situated only 102 miles west of Montreal

(Continued on page 10)

MEMBERS of Morrisburg Hydro-Electric Commission, left to right: Reeve George Beavers, Superintendent Douglas Stitt, Commissioner John J. Thompson, Miss Mary Schwerdtfeger, Secretary-Treasurer, and Chairman E. D. Jones discussed distribution problems at a recent meeting.

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KINGSTON Dunbrick Company is a major industry. Manager Thomas Jones is demonstrating some of the semi-automatic equipment, which can produce about 2,100 bricks an hour.

ONE OF approximately 100 Morrisburg homes being relocated by Ontario Hydro in a new 84-acre subdivision, this sturdy concrete-block residence was carefully braced up with steel beams before the house-moving machine arrived to lift the home from its original foundation.

▽



and 48 miles south of Ottawa, Morrisburg is at the junction of three major highways. It is close to Highway 401 now being constructed to join Montreal and Windsor through Toronto, and forms the southern terminus of Highway 31 to Ottawa, much of which has been recently resurfaced.

The relocation by Ontario Hydro of a section of the main Montreal-Toronto C.N.R. line as part of the St. Lawrence Power Project relocation program also entails the building of new, associated facilities. Work has been started on the construction of an attractive new railway station with increased freight warehousing capacity. Efforts are underway to promote a docking wharf with warehousing facilities for distribution to Ottawa, which has its shortest direct connection with the St. Lawrence River at Morrisburg.

In addition, Morrisburg officials feel that recent industrial development has been slow because of the uncertainty that existed for some time regarding the eventual future shoreline of the town. Now, they say, industry may locate with confidence.

Churches and Schools

The religious needs of the villagers are capably fulfilled by one Roman Catholic and six Protestant congregations. The site of St. James Anglican Church was deeded to the congregation in 1856, and the first church building erected the following year. The present structure replaced the earlier one in 1894, and the congregation today numbers some 400 persons.

The present United Church, one of the community's oldest, was constructed in 1884 as the house of worship for the large Methodist-Episcopalian congregation then resident in and near the village. This church, situated near the water, is known for its many attractive memorial windows.

Morrisburg has a Presbyterian

congregation founded in 1823 in what was then Williamsburg township. The history of its Roman Catholic parish also is an expression of the faith of its members for it was in 1831 that the congregation acquired its first church building. The Lutheran and Pentecostal Churches and the Salvation Army are represented by active congregations.

Situated on adjacent lots and located centrally in the village are Morrisburg's two excellent schools. About 300 children are accommodated in the modern 10-room public school opened for classes in 1952. This building, containing an auditorium and kindergarten, replaced two smaller elementary schools, one of which has been converted and is now used as an office building by Morrisburg Hydro-Electric Commission.

The high school was built in 1926 to replace Morrisburg's first high school which was destroyed by fire. Noted for its traditionally high academic qualifications, Morrisburg High School also has a girls' trumpet band, which has won considerable acclaim.

Relocation

The relocation work being carried out by Ontario Hydro to prepare for the raised water level associated with the St. Lawrence Seaway and Power Project, embodies the setting up of a completely new subdivision in the community's northeast periphery. The work consists of moving houses from the affected area along the southwest edge of the village into a new 198-lot subdivision, laying new water and sewage services, providing new roads and sidewalks, and building a new centrally located shopping area, which will consist of approximately 50 commercial sites.

By the first week in July some 74 houses, many of them built before the turn of the century, had been placed on new foundations by the large house-moving machines engaged in the work. The new 84-acre subdivision will consist of both old homes and new houses, some of which are now under construction along with 60 three-bedroom dwelling units. Months of careful planning preceded a start on the relocation, and when completed this new residential section will present a pleasing blending of modern and traditional types of architecture.

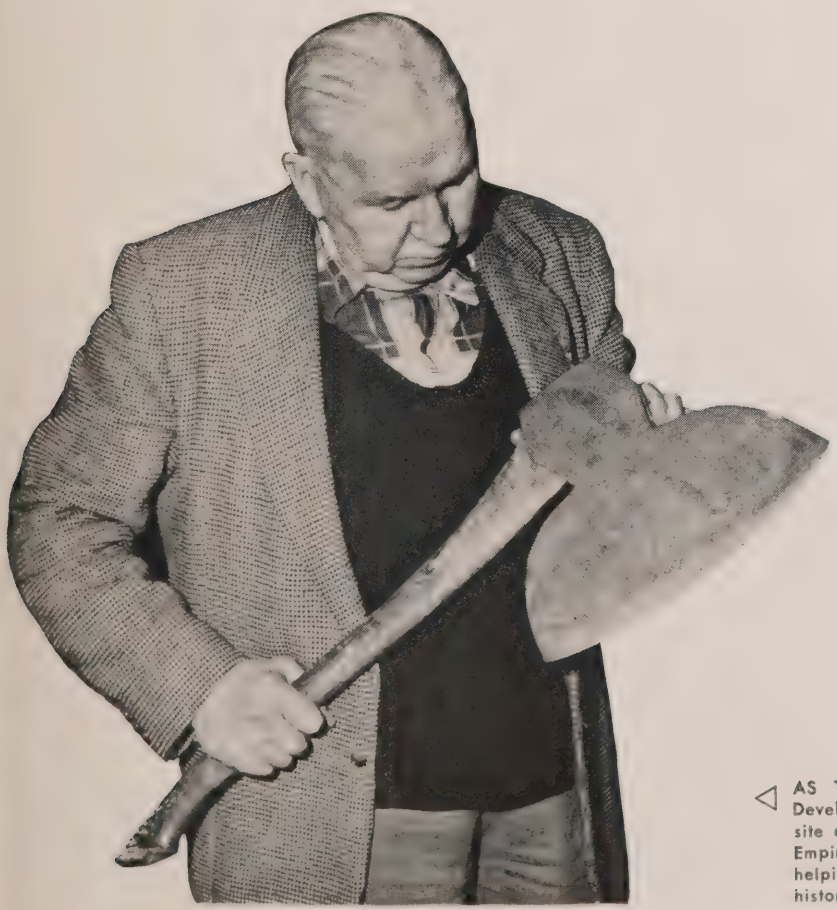
Indirectly a result of the joint undertaking by the United States and Canada to harness the power of the St. Lawrence, are the plans now underway to develop a system of scenic parks along what was formerly the International Rapids. Morrisburg is now serving as the headquarters for The Ontario St.-Lawrence Development Commission (see June, 1957 issue), the directing agency.

When the Ontario Government established this commission in 1955, it named one of Morrisburg's most noted citizens to head the agency. George H. Challies, a former Vice-Chairman of Ontario Hydro, serves as Chairman of the Commission. A resident for many years, Mr. Challies guides the work from the commission's white frame office building where maps, models and plans anticipate the completed system.

Morrisburg is represented by several active and public spirited service and fraternal organizations. Morrisburg and District Canadian Club is, for example, one of the largest rural affiliates of the organization.

The community boasts such fraternal orders as the Masonic Lodge,

(Continued on page 33)



◁ **AS THE headquarters of The Ontario-St. Lawrence Development Commission, Morrisburg is presently the site of a temporary museum for a collection of United Empire Loyalist relics. Here James Rooke, who has been helping with the job of collecting and classifying the historic articles, examines a rather sinister axe.**

IMPRESSIONS OF

10th ANNUAL MEETING

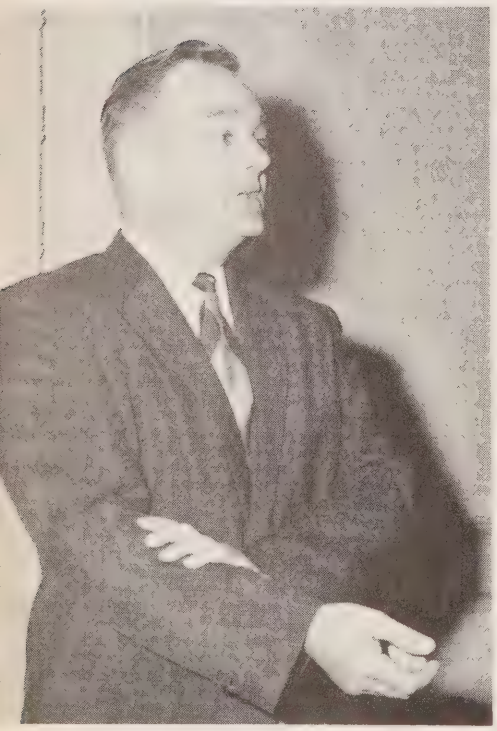
A.M.E.U. TORONTO REGION

DESCRIPTIONS ranging from the London method of handling heavy traffic to house building, and from Britain's postwar reconstruction to nuclear energy were included in an address delivered by Dr. Otto Holden, Hydro's Chief Engineer, at the annual meeting of the A.M.E.U., Toronto Region, held in Toronto recently.

Recently returned from a fast-moving business trip to Britain and the continent, Dr. Holden told the meeting that he was particularly impressed with the emphasis the United Kingdom was placing on nuclear-electric power, and with the progress that had already been made in that direction. He described his visit to Britain's first atomic power plant, the 92,000-kilowatt Calder Hall project, adding that, at present, several larger plants, varying in capacity from 275,000 kw. to 500,000 kw. are either contemplated or under discussion.

Dr. Holden explained the British method of group bidding where, for a fixed price, the contractors guarantee the construction of the entire nuclear plant right down to the exact kilowatt of capacity. He also made reference to the Dounreay project in the most northerly part of Scotland where research is being conducted in connection with a fast breeder type of reactor which, he said, was likely to lead to further important discoveries.

The speaker called attention to remarks made by Sir Christopher Hinton, Director, Industrial Group,



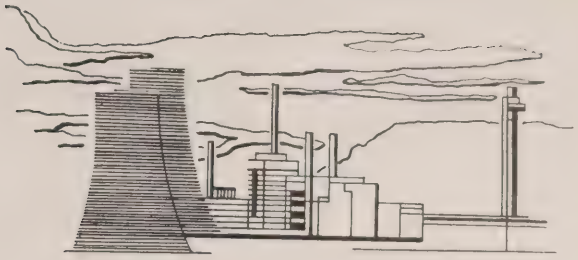
△

ROY BEITH, Manager and Secretary-Treasurer, Electrical Employers Association, stressed the importance of effective safety measures in electrical utility operations.



MEMBERS of the 1957-58 executive: Seated, left to right—A. E. Edmonds, Swansea; E. J. Woelfle, Toronto, President; R. H. Philip, Trafalgar Township; S. J. Pollock, Toronto Township. Standing, from left—Albert Hamilton, Forest Hill Village; Don White, North York Township, Charles Copland, Aurora. ▷

EUROPE



U.K. Atomic Energy Authority, during a recent trip to Sweden. He said that Sir Christopher had indicated on that occasion that nuclear power would be produced at a cost equal to the price of coal by 1965, and during the 1980's nuclear power would be about half the cost of power from coal. "I formed the definite impression," Dr. Holden said, "that the great hope of the British people and their future depends upon the solution of nuclear energy as a source of power."

While in London, Dr. Holden addressed the Royal Society of Arts on the subject of the St. Lawrence Seaway and Power Project. (It is of interest to note that Dr. Holden has been awarded the silver medal of the Royal Society of Arts for this paper, which has been acclaimed by the Society as "an enlightened exposition.") He also visited Germany to inspect some of the equipment, which is being designed and manufactured there for the St. Lawrence Power Project.

During the afternoon business session, A. W. Murdock, Hydro's Rate Study Engineer, gave a detailed explanation of the new method of determining street lighting charges, which had been put into effect at the beginning of 1957, with provision for necessary adjustments for 1956. He stated that firm charges could now be established at the beginning of each year, thus eliminating the necessity of year-end adjustments. Mr. Murdock also pointed out that the procedure was much simpler in application and the results closer in line with actual street lighting costs.

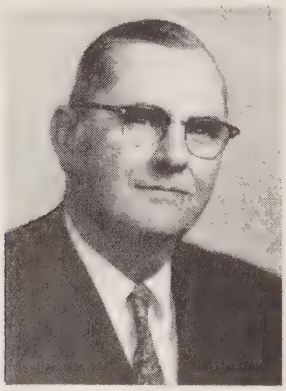
Roy Beith, Manager, Electrical Employees Association, reported to the meeting that in the first five months of this year, 13 employees of electrical utilities in Ontario had died as the result of accidents. He stressed the need for management participation in safety programs, and suggested the following steps in the interest of safe utility operation: improved engineering on lines and equipment to eliminate pole hazards; thorough training and examinations prior to job promotions, careful supervision and the development and strict enforcement of safety regulations. He said his association intended to inaugurate a two-day course for foremen designed to develop their sense of responsibility and increase their ability to handle men.

The following members were elected to the 1957-58 executive of the Toronto Region: E. J. Woelfle, Toronto Hydro, President; R. H. Philip, Trafalgar Township, Vice-President; Sam Pollock, Toronto Township, Secretary-Treasurer. Elected directors were: William March, Etobicoke Township; A. E. Edmonds, Swansea; Charles Copland, Aurora; Don White, North York. *—by Don Wright.*



THESE delegates were noted examining an advance copy of the A.M.E.U. Summer Technical Conference program. From the left are — James Wickiam, East York Township; R. H. Philip, Trafalgar Township; John Torrance, Etobicoke Township, E. J. Woelfle, Toronto, and S. J. Pollock, Toronto Township.

PERSONNEL BRANCH NAMES NEW DIRECTORS



D. W. OLIVER



W. H. BARNES



R. H. NICHOLSON

A MAJOR re-allocation of duties and responsibilities within Ontario Hydro's Personnel Branch was announced recently by the Commission.

Designed to meet the growing demands placed on the Branch, the reorganization was necessitated by the death of two senior Personnel officials earlier this year, as well as recent administrative changes. Effective August 1, three new Directors were appointed to head important Divisions of the Branch, and will report to C. B. C. Scott, Assistant General Manager - Personnel. (Appointment of Mr. Scott, who succeeded the late John Dibblee, was announced in the May, 1957, issue of Ontario Hydro News.)

P. W. Oliver, P.Eng., formerly Director of Collective Relations, has been named Director of Employee Relations. A native of Dorchester, Ontario, Mr. Oliver has been with Ontario Hydro since 1925 and has been identified with personnel work in various capacities since 1948. In his new position, Mr. Oliver will be responsible for the co-ordination of personnel work throughout the Commission's operations and for research and analysis with respect to personnel policies.

W. H. Barnes, formerly Superintendent of Personnel, Ontario Hydro's St. Lawrence Power Project, has assumed the position of Director of Industrial Relations (formerly Collective Relations). Mr. Barnes, who spent his boyhood in Prescott, Ontario, was with the Canadian Army for five years and served in Italy, France, Holland and Germany during the war. From 1945 to the beginning of 1948, he was identified with the Federal Department of Labour as District Supervisor, Canadian Vocational Training. In March, 1948, Mr. Barnes joined Ontario Hydro and has served as a Personnel Officer at various projects, including the St. Lawrence. In his new capacity, he will be responsible for all labour agreements entered into by the Commission.

R. H. Nicholson, who has been appointed Director of Personnel Services, will be responsible for employment, salary administration, manpower planning and training. Returning to the University of Toronto to complete his studies after having served with the R.C.A.F. in the Middle East, Africa and Far East during the war, Mr. Nicholson received his B.A. in 1948 and his M.A. in 1949. He worked with a firm of Industrial Consultants for a time while teaching at the University of Toronto and subsequently joined the staff of McMaster University in 1953 to establish a Department of Psychology. In July, 1955, he joined Ontario Hydro's Personnel Branch as Supervisor of Manpower Development.

S. K. Cheney, formerly Director of Wage and Salary Administration, has been appointed Special Advisor to the Assistant General Manager - Personnel.

Dr. R. W. I. Urquhart will continue as Director of Medical Services and John MacLellan as Director of Accident Prevention. ■

FOTO-NEWS

OTTAWA HYDRO EMPLOYEE HONORED

A HIGHLIGHT of the ceremonies associated with the recent official opening of the new Head Office and service building of the Ottawa Hydro-Electric Commission was the presentation of a Canadian Electrical Association Resuscitation Medal to C. M. Miller, an Ottawa Hydro employee (left), who saved the life of a fellow-employee on January 29 this year.

The presentation, made by A. C. Brittain, Vice-President and Treasurer of the Gatineau Power Company (right), cited Mr. Miller's action in successfully resuscitating the Ottawa Hydro staff member at the utility's Queen's substation. "Actual resuscitation by the Schaefer method was carried on for about three minutes before there were any signs of life, and for about five minutes before the injured employee breathed without assistance."



Mr. Miller received a certificate and also a medal made from copper taken from the first transmission line built in Canada. In presenting the award, Mr. Brittain said that the C.E.A. presentations were first instituted in 1922. During the intervening 35 years only 178 such awards had been made across Canada.



HYDRO OFFICE OPENING

THE RIBBON cutting ceremony which officially marked the recent opening of the new office building of Ontario Hydro's St. Thomas Operating Area was performed by Elgin County Warden James C. Hindley recently. Pictured at the ceremony are: left to right — Rev. R. Evan McLagan, Yarmouth Centre United Church; W. H. Correll, St. Thomas Area Manager; Warden Hindley; R. M. Laurie, Manager of Hydro's Western Region; F. S. Thomas, M.L.A., Elgin, and Mayor John M. Stirling, St. Thomas.

SYMBOL OF PROGRESS



Ottawa Hydro inaugurates new Head Office and service building

Symbolizing the expanding scope of its operations and its all-embracing role in the development of Canada's Capital City, Ottawa Hydro-Electric Commission took another progressive step forward recently with the official opening of its handsome new Head Office and service building. Significantly enough the impressive structure is situated in the southern section of the city where even now there is ample evidence of rapid civic growth. In keeping with the forward-looking design of the extensive yet centralized headquarters, this site on Albion Road was chosen to provide adequate space for the present facilities of the Ottawa Commission and to ensure that the utility can "flex its muscles" when future demands necessitate such action.

Guests Applaud

Present to salute the Ottawa Commission's notable milestone were representatives of Ontario Hydro, headed by Chairman James S. Duncan, and municipal Hydro utilities from many sections of the province, including officers of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities. Among the guests, too, were executives of the Gatineau Power Company.

More than 1,000 Ottawa citizens, including many members of the Ottawa Hydro staff and their families, witnessed and applauded the formal inauguration of the million-dollar building. The official ceremonies were held in a capacity-filled section of the utility's spacious garage which was festooned with flags and tastefully converted to a temporary auditorium for the occasion. Ottawa Hydro Chairman Stanley J. Lewis, O.B.E., LL. D., capably filled the role of Master of Ceremonies, and participated jointly with Ontario Hydro Chairman Duncan and Mayor George Nelms in cutting the traditional red ribbon. Ottawa Hydro's General Manager and Chief Engineer, F. G. York introduced guests on the gaily-bedecked platform, including Bert Merson, Chairman Toronto Electric Commissioners and Executive Vice-President, O.M.-E.A.; G. R. Davis, Kingston, President A.M.E.U.; representatives of Ontario Hydro, including Mr. Duncan, First Vice-Chairman W. Ross Strike, Commissioners D. P. Cliff (Secretary - Treasurer, O.M.E.A.) and Lt. Col. A. A. Kennedy, A. W. Manby, General Manager, E. B. Easson, Secretary, and O. S. Luney, Manager, Eastern Region; President Gordon G. Gale and Vice-President and Treasurer A. C. Brittain, Gatineau Power Company; General Manager A. K. Hay, Federal District Commission; W. C. Lewis, Secretary-Treasurer, and F. L. G. Askwith, Assistant Chief Engineer, Ottawa Hydro, and Reeve D. M. Coolican, Rockcliffe Park.

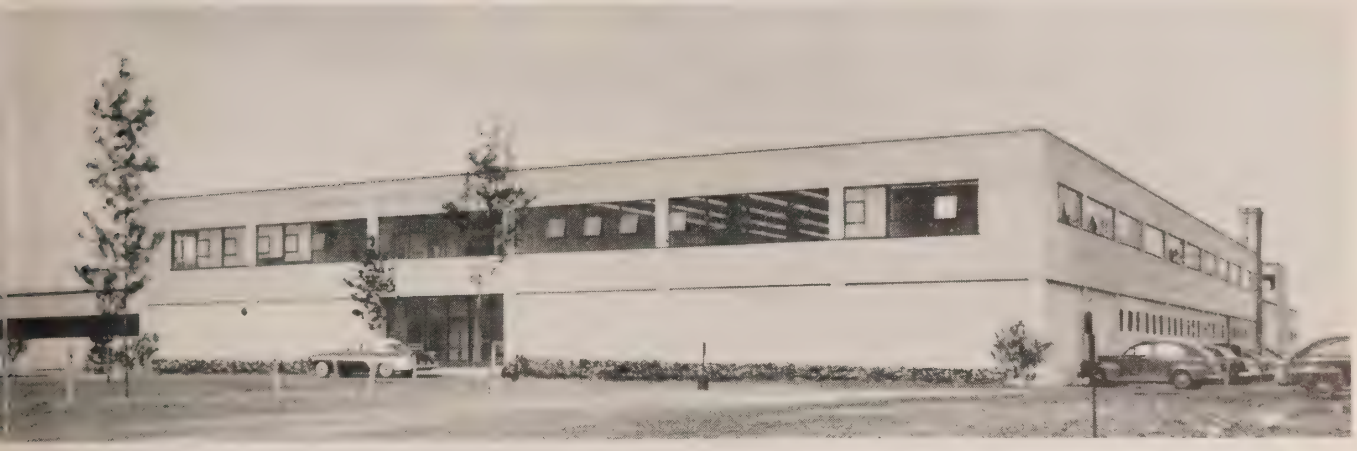
Praises Staff

In his introductory remarks, Chairman Stanley Lewis praised the untiring efforts of several Ottawa Hydro executives including General Manager F. G. York, F. L. G. Askwith, W. C. Lewis, Edward Murphy, C. E. McGuire and other department heads.

Citing examples of the utility's phenomenal growth, Mr. Lewis pointed out that assets had grown from $200,000 in 1905 to the present figure of $21,000,000. This favorable position, he emphasized, had been attained by utilizing current revenues, and without resorting to

OTTAWA HYDRO'S new property on the southern outskirts of the Capital City has a frontage of 380 feet. Designed to take a future third floor, the $1-million office and service building incorporates all phases of the utility's growing administrative and technical operations.

▽



the use of municipal or other forms of financing.

As the key figure in the ribbon-cutting ceremony, Mayor George Nelms stressed the continuing progress of the Ottawa Commission, which is presently serving some 73,000 and more customers.

"This year we are spending approximately $2,228,000 on system improvements, including $400,000 on the installation of underground wiring."

Introduced by Ottawa Hydro's Vice-Chairman L. L. Coulter, Hydro Chairman James Duncan extended congratulations to the Ottawa Commission on behalf of his Ontario Hydro colleagues. The new building, he pointed out, signified Ottawa Hydro's impressive record of continuous progress and achievement since December. 1905. when the City of Ottawa purchased the plant and equipment of the Consumer Electric Company, and first undertook to supply power to the community.

Commends Public Service

"It is a monument to the succession of dedicated men and women

(Continued on page 18)



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ONTARIO HYDRO CHAIRMAN James S. Duncan (left), participated jointly with Mayor George Nelms and Ottawa Hydro Chairman Stanley Lewis in the "ribbon-cutting" during the ceremony.

who have given so unstintingly of their time and abilities in serving the Ottawa Commission."

Turning to the future, Mr. Duncan predicted even greater development of Ontario's resources and those of Canada as a whole.

"Surprising as it may be to some members of this audience, it is not inconceivable that this great building may, within a few years, look small to us."

Universal Form of Energy

Toronto Hydro Chairman Bert Merson, speaking as Executive Vice-President of the O.M.E.A. said the new building manifested the ever-growing demands for electricity, the most universal form of energy in the present-day world.

Congratulating the Ottawa Commissioners on the new building, Mr. Merson expressed envy that the utility was able to house all of its activities under one roof.

Speaking on behalf of the A.M.-E.U., President G. R. Davis, Kingston, a former General Manager of the Ottawa system, also extended heartiest congratulations. W. Ross Strike, First Vice-Chairman of Ontario Hydro, in echoing Chairman Duncan's congratulatory sentiments, stressed that Ottawa's electrical rates are among the lowest in the world.

C.E.A. Presentation

Another highlight of the opening ceremonies was the presentation of a Canadian Electrical Association Resuscitation Medal to C. M. Miller, an Ottawa Hydro staff member, who saved the life of a fellow-employee on January 29 this year.

The presentation was made by A. C. Brittain, Vice-President and Treasurer of the Gatineau Power Company.

Public Inspection

Climaxing the inauguration ceremony, guests eagerly availed themselves of the opportunity of inspecting the spacious new headquarters structure.



MEMBERS of the Meter Department staff, including Frank Sale, Lorne Davis, Superintendent C. E. McGuire and Ray Reside, find their surroundings convenient and pleasant.

TOURING the new building after the official opening ceremony, many guests paused to examine this display of street lighting fixtures and equipment in the warehouse.



The new $1,059,000 office and service building has effectively solved the problem of hit-and-miss decentralization, as well as making possible the streamlining of the commission's entire administrative and mechanical operations.

The building was originally planned to group and contain all the staff and equipment related to Hydro service and installation work. But later, looking to the future and the expected continued growth of the city, it was decided to put up a structure which would accommodate the complete organization, including the head office, administration and staff.

Designed by Burgess and McLean, of Ottawa, and built by George A. Crain and Sons, of Ottawa, it covers an area of 115,800 square feet on the ground floor, with a partial second floor office area of 35,000 square feet. The building has a total content of 3,200,000 cubic feet.

Due to the utilitarian design of the structure the very low cost of $7.40 per square foot of building area, or 33 cents a cubic foot was achieved.



But despite low construction costs, the general appearance of the building is all that could be desired. Completely functional, it nevertheless combines all the attractiveness and style associated with modern office design and construction.

Exterior Walls

The exterior walls of the ground floor area are constructed of precast concrete panels cast on the site. These panels are completely demountable to facilitate expansion of the building in any direction. Exterior walls of the second floor office are of buff brick.

The interior of the building is completely finished with exposed masonry using concrete blocks and precast concrete panels for the ground floor with buff utility tile throughout the remainder of the building.

The building is constructed with a steel frame designed as an interlocking truss system to conserve heavy structural steel sections and to facilitate delivery. The office area of the building is planned to take a future third floor with elevator.

The ground floor area contains the garage and loading ramp with an area of 38,500 square feet for storage of all service trucks and other vehicles used by the commission, and is equipped with electronically controlled overhead doors. Adjacent to the garage is the vehicle service department, which has an area of 8,700 square feet and contains the repair and maintenance shop, greasing and car-washing facilities, as well as machine and carpentry shops.



The remainder of the ground floor area contains warehouse and storage space for the large and varied stores required for repair, installation and maintenance work carried out by the commission, and also includes receiving and stores offices, transformer room, boiler room, meter shops and transformer repair shop. An area of 42,000 square feet is serviced by a large overhead electric crane of 10-ton capacity for handling cable drums, poles and other large and heavy stores.

The second floor office area houses the administrative, engineering, accounting and billing staffs, together with the executive offices and board room. The rear section of the second floor area contains the lunchroom and cafeteria, washrooms, locker room and associated facilities. *—by the Editor.*

THIS main business office — as well as executive, engineering and other administrative offices — is located on the second floor. The interior walls are finished with buff utility tile.



ASSOCIATION OF MUNICIPAL ELECTRICAL UTILITIES (OF ONTARIO)
SUMMER TECHNICAL CONFERENCE
1957

A.M.E.U. summer conference draws record attendance

TECHNICAL TALKS



△ ALTHOUGH some delegates momentarily transferred their attention to the photographer, the general concentration evident in this view of the conference hall typifies the keen interest in the wide range of technical papers which were presented during the well-attended sessions.



▷ IT TAKES money to hold a convention! Manifesting the same intentness visible in the upper photograph, delegates line up during the registration period preceding the first session. On duty at the desk were Miss Jean Sutherland, Ottawa Hydro; Mrs. Robert Buxton, Toronto, Miss Bessie Thomas, Ottawa.

PAPERS covering practically every phase of engineering in an electrical utility earned for this year's A.M.-E.U. Summer Technical Conference a unanimous vote of approval from the large group of participating delegates.

Held in Ottawa's Chateau Laurier, the conference was under the auspices of the A.M.E.U. Engineering Section. Manifesting the growing significance of this gathering, some 350 representatives of more than 100 Ontario electrical utilities —many of them accompanied by their wives—attended the three-day technical assemly.

A highlight for the lady delegates was a bus tour of Canada's Capital City, with Mrs. F. G. York, wife of the General Manager, and Mrs. W. C. Lewis, wife of the Secretary-Treasurer, Ottawa Hydro-Electric Commission, capably filling the combined roles of guide-hostesses for the occasion. Another event of interest for the "non-technical" visitors was the tea and reception in the hotel's Quebec suite where guests were received by their hostess, Mrs. G. R. Davis, Kingston, wife of the A.M.E.U. President.

In his official welcome to delegates at the first session, President Davis briefly traced the growth and progress of the A.M.E.U. organization. He mentioned specifically the formation of two new regional associations, including the combined Eastern-East Central Region and the new Northeastern Region.

President's Counsel

Mr. Davis also announced the appointment of a President's Counsel, including: H. A. Howard, Thorold; J. E. Teckoe, Windsor; M. W. Rogers, Carleton Place; R. S. Reynolds, Chatham; A. W. H. Taber, Fort William, and F. G. York, Ottawa.

Directing attention to the growing importance of load growth studies, the A.M.E.U. President pointed out that this problem was being accorded the closest scrutiny by an A.M.E.U. committee, as well as by a joint O.M.E.A.-A.M.E.U. group composed of Gordon H. Fuller and J. E. Teckoe Jr., Windsor; Bert Merson and Harry Hyde, Toronto, along with I. K. Sitzer and Adam Smith, Ontario Hydro, Toronto.

Commending the wholehearted and unselfish work of a representative group of individual members on the various A.M.E.U. committees, the speaker said "the good pool of knowledge within our organization" was available to the smaller utilities when required.

"I am pleased to advise that we are now in a position and would welcome the opportunity to help these utilities with almost any technical problem common to an electrical system," he said.

Engineering Section

Harry Hyde, Chairman of the Engineering Section Board, who presided over the discussions, in his introductory remarks at the initial session, observed that the Engineering Section is composed of 10 main committees and more than 30 subcommittees.

"This means that we have more than 100 representatives of Ontario Hydro and the municipal electrical utilities engaged in committee work associated with the A.M.E.U. Engineering Section," he stated.

In the ensuing discussions delegates heard three papers by representatives of the Street Lighting Committee, presaged by a brief address by Chairman W. Howard Powell, Peterborough. The first paper, presented by J. D. Alexander, Toronto, discussed "Suggested Applications for Fluorescent Fixtures." A second address, presented by E. L. Burnham, Belleville, considered the "Pros and Cons of Group or Spot Replacements," while the concluding paper by Ivan L. Bradley, Waterloo, dealt with the "Extension of Street Lighting to New Areas."

Boy Scout Motto

Highlight of the noon luncheon on opening day was an engrossing

(Continued on page 22)

ROBERT LONG, Toronto Hydro, did some rapid mathematical equations to illustrate his paper on communications problems. Committee Chairman H. A. Howard, Thorold (left), presided at this session.



LEADING the discussions during the System Planning session were: left to right — Committee Chairman G. F. Jannaway, St. Catharines P.U.C.; W. G. Fisher, Windsor U.C., W. J. Wylie, Toronto Hydro.



address by J. A. Williamson, Niagara Falls, A.M.E.U. Vice-President and Chairman of the Standards and Engineering Liaison Committee.

Basing his theme on the Boy Scout motto, "Be Prepared," the speaker asserted that every utility representative should be ready to lead his community into the future. Dealing with community relations, he urged utility engineers to acquaint themselves fully with the general policy of their particular utility.

While anticipating "trouble" was necessary in carrying out a community relations program, every utility representative should be seeking for new ideas of doing things. Mr. Williamson cautioned, however, that each new idea should be thoroughly examined before proceeding, to ensure that the results would be desirable.

Customer education was another prime requisite of a community relations programs.

"Utilities should be educating their customers in the uses of electricity, in electrical living and adequate wiring. We should bring forward constantly the low cost of electrical service on the basis of the dollar cost for the service rendered. We should show quite vigorously that our electrical service is more economical than other sources of energy where such is the case."

Load Growth

Expanding his theme of preparedness, Mr. Williamson emphasized the necessity of anticipating load growth. In addition to preparations for load growth, utilities must "Be Prepared" to meet demands for a higher quality of service. In this connection he predicted that electrical systems might have to consider doubling voltage for domestic service.

Most new homes were being equipped with a cathode-ray volt meter in the form of a television set. This sensitive instrument enabled the customer to keep a "close check" on voltage. "As a result they will demand a very close degree of voltage regulation at their services."

With the advent of automation, industry and commerce would also require close voltage regulation since most of the automatic equipment was electronically-controlled.

Service continuity was another problem which must receive immediate consideration from utilities. This was particularly true in the case of industrial customers where increasing automation and production-line methods would demand a comparable degree of service security.

Community Appearance

Turning to the question of community appearance, Mr. Williamson stressed that utility overhead construction often detracted from the beauty of streets.

In this connection, he suggested smaller and fewer cross-arms on poles. Continuing he said that cross-arms might even be eliminated through new construction techniques.

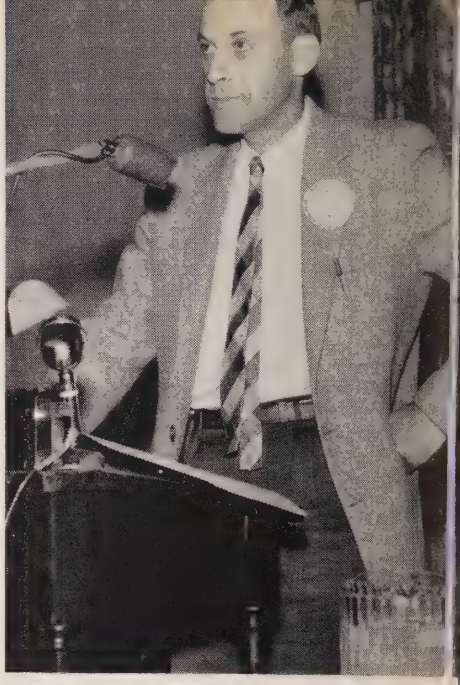
"We can avoid running heavy secondaries across intersections by designing a system that does not require them. We can hide our transformers in trees and find transformer bank locations off the streets," the speaker declared.

Steel aluminum or concrete poles —upright and properly spaced— would also add to a community's appearance. Turning to underground construction, Mr. Williamson expressed the view that utilities would have to institute this type of distribution "in the not-too-distant future."

"As a final note, I would like to suggest that in improving community appearance, you are also improving the reliability of your system."

Community Safety

In discussing community safety, Mr. Williamson urged that "fenced-in" open construction substations be eliminated in favor of totally-enclosed installations. Open, uninsulated overhead construction had caused many deaths and serious accidents over the years, the speaker added. He suggested that insulation or placing construction underground could greatly reduce public hazard, simultaneously improving system reliability. In conclusion, Mr. Williamson cited several important "Musts" for utility representatives who should "be prepared" to: Do those things that should be done; Scout aggressively for new ideas, new materials and methods; Study these things, accept the good and use them; Carry out carefully planned experiments; Report to fellow-members of the A.M.E.U. the results good or bad, successful or unsuccessful; Take part in A.M.E.U. activities and receive in return far more than given, and, Lead to a larger, more beautiful, to a happier and safer life in each community, in Ontario and in Canada.



JOHN TORRANCE
Etobicoke Hydro-Electric Commission
Chairman, A.M.E.U. Substations Committee

Substation Problems

Opening the afternoon session, A. G. Stacey, Guelph, gave a brief report on the activities and functions of the newly-organized Metering Committee. Keynoting this session, which focused attention on substation problems, were several pertin-



R. S. COLES
Distribution Department, Ontario Hydro,
presented paper on substation equipment.



CHASE HUTCHINSON
New York City
who discussed present and future
utility distribution problems

ent papers introduced by John Torrance, Etobicoke, Chairman of the A.M.E.U. Substations Committee. The agenda for this session included a discussion on "Transformer Noise and its Treatment" by C. K. Earle, Hamilton, while R. S. Coles, Ontario Hydro, and D. K. White, North York Township, jointly presented a paper on the "Application of Fuses, Reclosers and Breakers." This dual presentation followed brief supplementary papers dealing with various types of substation equipment introduced by Fred Hucaluk, Galt Public Utilities Commission.

Nuclear Energy Program

In keeping with the forward-looking theme of the conference, W. Ross Strike, First Vice-Chairman, in presenting greetings from Ontario Hydro, following the fully-attended banquet, dealt briefly with the Commission's nuclear energy studies. Mr. Strike was introduced by Vice-Chairman L. L. Coulter, Ottawa Hydro-Electric Commission. Reporting on progress associated with the construction of Canada's first nuclear-electric station on the Ottawa River, Mr. Strike said a new pressure-tube design would be ready for the Nuclear Demonstration Plant within a few months.

In changing the design of some aspects of the pilot station, he said, the joint parties in the project were confident that considerable improvement had been effected. Mr. Strike, in stressing the importance of developing the most efficient methods of producing power from nuclear sources, said that anticipated demands would involve heavy increases in coal imports from United States if conventional thermal-electric plants were constructed.

"This could affect Canada's balance of trade," he pointed out.

In discussing the role of the A.M.E.U., the speaker said that Ontario Hydro was becoming increasingly aware of the vital contribution the association was making to the growth of the province's electrical systems.

Pledges Assistance

"I am happy to be able to assure you of Hydro's constant desire to assist you in every endeavor."

In urging members of the O.M.E.A. to provide continued financial assistance to the A.M.E.U. in its technical program, Mr. Strike said that "only as we co-operate can we perform the tremendous tasks that lie ahead. To proceed separately would mean ruin."

New Memorial Trophy

Delegates gave a generous round of applause to Mayor George Nelms following his welcoming address. Another featured speaker was O.M.E.A. President Gordon H. Fuller. Mr. Fuller also joined with A.M.E.U. President Davis in making the first formal presentation of the new O.M.E.A. - A.M.E.U. "Punch Bowl" trophy to R. H. Brown, a commercial associate member of the A.M.E.U. Mr. Brown won this year's commercial members' annual golf tournament with a low net score of 66. He thus became the first recipient of the new trophy, jointly presented by the sister organizations in memory of E. G. "Punch" McCracken, Vice-President and General Sales Manager of Sangamo Co. Ltd., who was an active and pro-

(Continued on page 24



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GORDON H. FULLER, O.M.E.A. President (left), with A.M.E.U. President Davis made the first formal presentation of the new O.M.E.A. - A.M.E.U. "Punch Bowl" golf trophy in memory of the late E. G. "Punch" McCracken to R. H. Brown, Toronto, winner of the 1957 golf tournament.

minent associate member of the A.M.E.U. for many years.

Communications and overhead construction engaged the attention of delegates during the third technical session of the conference. Introduced by H. A. Howard, Thorold, Chairman of the A.M.E.U. Communications Committee, a paper on "Spectrum Problems Facing A.M.-E.U. Mobile Radio Users" was presented by Robert Long, Toronto.

Overhead Construction

Delegates then turned their attention to the question of overhead construction. Guiding the discussions was C. S. Phelps, Sarnia, who introduced J. W. Suggitt, Ontario Hydro Research Division. Mr. Suggitt's illustrated presentation on "Pole Treatment" provided the basis for the lively "question-and-answer" period which followed. Climaxing this morning session was a carefully-prepared paper on "Transformer Usage and Service Continuity" by E. F. Burbank, Toronto Hydro. Mr. Burbank's talk was also illustrated by colored slides.

War Being Lost

Speaking at the final conference luncheon, Roy Beith, Manager and Secretary-Treasurer of the Electrical Employers Association, warned that "the war we are waging on accidents is not going the way we want it to go."

Mr. Beith said that 13 fatal accidents had taken the lives of utility linemen throughout Ontario during the first five months this year.

"Today we face the tragic fact that, unless we suddenly hit upon a plan of attack more effective than we have yet devised, the death toll in the utility field this year will reach an all-time high for the Province of Ontario."

Dealing with the positive side of the problem, the speaker urged that more consideration be given to accident prevention in designing, building and choosing materials associated with construction of electrical systems.

The need for simplifying and modernizing line construction materials, such as wood poles, steel towers, wire, insulators and line hardware, was long overdue.

"In my opinion the automatic sleeve is a good example of an improved device. This has made a simple and safe job out of what used to be a hazardous one."

But there was still considerable room for improvement in this field, the speaker continued. As an example, Mr. Beith cited the need for more adequate clearances. The design of many types of equipment precluded the installation of safe covering or protection.

"This then presents a constant hazard to which the lineman is exposed."

Pole Line Hazards

One of the most important challenges was the elimination of pole line hazards, to obviate the need of dressing linemen in an almost complete protective suit of armor, such as a rubber gloves, hard hats, etc. Removing exposure hazards entirely or designing equipment to permit secure and safe covering of such equipment would be much easier than encumbering workmen so that they spent much of their time in alleviating the discomfort of "suits of armor" rather than in concentrating on their work.

Until engineering skills developed safer structures and equipment, however, utilities must continue to work with existing hazards. This meant that management must choose its supervisors carefully.

Suggesting that each utility develop a set of safety rules and ensure that supervisors were responsible for adherence to the rules, Mr. Beith expressed the view "that a penalty for any violation of these rules is the only answer—a penalty to be inflicted not only on the man, but also on the foreman."

Three of the 13 fatal accidents this year could have been prevented had the linemen been wearing their rubber gloves. A fourth was due to the fact that the lineman did not realize that, with the secondary side of his transformer alive, he still had primary voltage at the bushing (this being a banked transformer) even though the primary drop was disconnected.

Addressing commissioners, particularly representatives of the smaller utilities, the speaker urged that only capable, experienced linemen be hired.

"In the last four years, three men have died, and many more have been seriously burned while working with smaller utilities. It was found during investigation that these men were not qualified to do this type of work."

Mr. Beith also recommended that small utilities, where only one lineman, and possibly a groundman, are employed, have a firm understanding that no work on energized primary lines be carried out.

"It is an absolute necessity that each of us makes every effort to see that we and those who work for us, work safely. To do less betrays a lack of self-respect for our fellowman."

Higher Voltage for Systems

System Planning, with Chairman G. F. Jannaway, St. Catharines, presiding was the subject for the final afternoon session. Presenting papers on two topics of interest were W. J. Wylie, Toronto Hydro, who discussed "A Higher Utilization Voltage — The Consumer — The Utility — The Manufacturer," while W. G. Fisher, Windsor, dealt with "Continuity Studies of Voltage Regulations and Service."

Key speaker at this session was Chase Hutchinson, New York City, who provided a thought-provoking address on the subject of "Electric Power Distribution -- Present and Prospective." Climaxing the last session, J. G. Sutherland, Hamilton, Chairman of the Underground Committee, introduced B. L. Brenner, Toronto, who presented his paper on "Experience with Aluminum Conductor Underground," while Mr. Sutherland brought the conference to a successful conclusion with his discussion of "Electrolysis Underground." — *by The Editor.*

WHILE THEIR HUSBANDS WERE "IN SESSION" LADY DELEGATES EMBARKED ON A BUS TOUR OF THE CAPITAL CITY.





CUSTOMER VS. UTILITY

A.M.E.U. Accounting Delegates Discuss Good Public Relations

Good public relations and their importance in municipal utility administration highlighted discussions during the recent sixth annual Accounting and Office Administration Conference of the Eastern Division, A.M.E.U.

Some 80 delegates, many accompanied by their wives, attended the two-day conference held in the picturesque Canoe Club building at Gananoque. Many of the visitors found time following the first day's session to enjoy a complimentary moonlight cruise through the Thousand Islands.

Business was "the order of the day," however, from the welcome extended by Chairman Floyd A. McRae, Brockville, to the final session. A panel discussion on customer relations, convened by William Gibbie, Oshawa, keynoted the whole conference as panel members cooperated in presenting a "formula" for promoting public confidence.

"Public confidence," said Mr. Gibbie in his opening remarks, "can only be engendered where sound policies are backed up by the desire to serve." He then introduced the other members of the panel, Miss Helen Symons, Belleville; Miss Rosa Spry, Stirling, and T. H. "Hap" Shouldice, Ottawa.

Miss Symons stressed the need for courtesy and honesty in dealing with customers. Special care should be taken, she said, in handling the customer who expresses doubt about his bill, and requests information on computing the total. "The employee's willingness to explain the bill may do much to inspire the confidence of the customer in the utility," Miss Symons pointed out.

In dealing with delinquent customers, Miss Symons expressed the belief that one "past due" notice was sufficient warning before cutting off the power to the customer. "One notice is sufficient to the prompt customer, who may have forgotten that his bill was due," she said. "A second notice is of little use in the case of the customer who is habitually delinquent."

Staff Training

Mr. Shouldice raised the subject of the need for staff training in building up good relations with the public. "Our success as a utility

BRIGHT sunshine and four comfortable garden chairs attracted (left to right)—William Gibbie, Oshawa; Miss Rosa Spry, Stirling; Miss Helen Symons, Belleville, and T. H. Shouldice, Ottawa. This quartette formed a panel for a discussion on public relations.

A MID-MORNING coffee break found (left to right) — Stewart Holt, Midland; J. E. Shenton, Barrie; Glen Williams, Gravenhurst, James Smail, Barrie, enjoying Old Sol's rays.





depends on good public relations," he said, "and we should remember that the customer provides us with the opportunity to earn our living."

"The employee dealing with the public should have an understanding of the customer's and the utility's problems," Mr. Shouldice said. "Let's remember that our employees are our show windows."

He added that experience had shown that female employees were superior to male in handling customers personally, and that the woman employee coming into direct contact with customers should be experienced in every phase of the utility's operations.

Miss Spry dealt with the proper use of advertising in promoting public sympathy and understanding of the utility's aims. Where possible, she said, it was important to inform customers of impending power interruptions in case of an emergency or to permit repair or rehabilitation work. She stressed, however, that "word-of-mouth" or "grape-vine" advertising was useful, and often the only way of informing the public where the utility had only brief warning of a cut-off.

"Telephone calls to the larger and more important customers will often achieve the desired effect in smaller communities," Miss Spry said. "The word is often passed along amazingly swiftly."

She also outlined profitable methods of utility advertising in the newspaper, radio or television media to inform customers of such matters as adequate wiring campaigns and utility expansion programs.

In much the same theme, W. Ross Strike, First Vice-Chairman, Ontario Hydro, addressed the delegates at the concluding luncheon. Remarking that mankind today is passing from the mass production era into the increased automation era, Mr. Strike expressed the view that people today are left with less in which to take a personal pride of accomplishment.

More Enthusiasm Needed

To compensate for the lack of this feeling of achievement, which once went hand-in-hand with individual craftmanship, Mr. Strike said, "Man should attempt to show more enthusiasm about others, and cultivate the spirit of being interested in other people."

"We can do a wonderful job, especially in our Hydro organization, to instill the old feeling of belonging in our dealings with the public. As I go about the province I can see that some of our older staff are doing a tremendous job in this respect, and I want to impress on the younger people the need for public sympathy and appreciation."

Mr. Strike continued: "If this is tried, every member of the staff will come to have a greater sense of accomplishment, pride and pur-

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△ W. ROSS STRIKE, Hydro's First Vice-Chairman (right), receives his badge and a welcoming handshake from Thomas Tindal, Gananoque.



▷ FRANK GOMER, Municipal Accounting Supervisor of Ontario Hydro's Internal Audit Department, during his address dealing with revised billing for street lighting.

pose. At the same time he will inspire a sense of loyalty among his associates and in the public he deals with."

The second guest speaker heard at the convention was Barry Stafford, Assistant Vice-President of Industrial Acceptance Corporation, who delivered a mirth-provoking dinner address.

Customer Deposits

The conference also devoted much time to studies dealing more specifically with the accounting function. Rod Ainsworth, Lindsay, Chairman of the sub-committee on records, introduced a lively discussion from the floor with his report of the sub-committee's findings on guarantee deposits.

Mr. Ainsworth outlined a recent court action in which it was ruled that a guarantee deposit was a reasonable security for a utility to ask of the individual customer. Some discussion followed from the floor as to whether money on deposit by customers should be carried in a separate fund or in the general funds for capital or operation.

Mr. Shouldice subsequently described the change - of - occupancy charge recently instituted by Ottawa Hydro - Electric Commission. He pointed out that the primary reason for the charge was to ensure that customers, who tend to change residence often, pay for the extra expense of meter reading, billing and other incidental charges involved.

Highlight of the final morning session was a report given by Frank Gomer, Toronto, Ontario Hydro Internal Audit Department, on certain new billing procedures involved in the institution of new rates for street lighting. Mr. Gomer stated that the revised billing procedure must incorporate three basic charges. These are: (1) The charge for power; (2) capital charges on equipment and depreciation costs; (3) charges for operation and maintenance.

The new bill must, therefore, carry a breakdown of these costs, Mr. Gomer said. He pointed out, that the new rates did not affect the present basic accounting procedure.

Financial Forecasting

A panel discussion on financial forecasting conducted by Aaron Hume, Belleville, East Central Region, Ontario Hydro, introduced a spirited "question-and-answer" period during which three panelists — Clare Campbell, Trenton; James Page, Renfrew and E. C. St. Dennis, Brockville—investigated the advantages of budgetting in the utility.

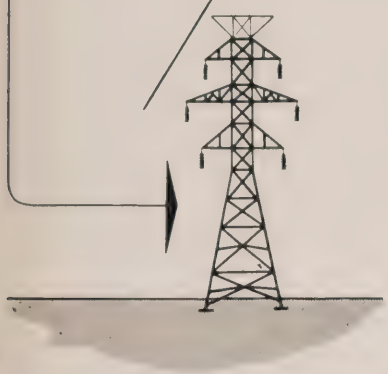
Mr. Campbell, while admitting that it would be impossible for larger centres to operate without a budget, suggested that in the case of smaller utilities, the person through whom expenditures are funnelled would be in the best position to effect a rigid control. Under some circumstances, therefore, budgetting was not essential.

G. A. Honsberger, Assistant Comptroller, Ontario Hydro, offered an opposing viewpoint to Mr. Campbell's. He argued that a budget was not designed as a rigid control over expenditures, but as a guide by which management might learn how to plan for the future.

Following the closing luncheon on Friday, Mr. McRae thanked the attending delegates for their part in the convention. They, in turn, applauded Mr. McRae and his committee: John Campbell, Secretary, Gananoque; Ross Stiver, Belleville; Rod Ainsworth, Lindsay; Aaron Hume, Ontario Hydro, Belleville; D. G. Harrington, Ontario Hydro, Ottawa; Jack C. Saunders, Ontario Hydro, Ottawa; William Gibbie, Oshawa; George Phillips, Smiths Falls; Thomas Tindal, Gananoque, and Ivor Leonard, Bowmanville.

The committee unanimously recommended that Mr. Stiver be named Chairman of the 1958 convention. —*by Gary Smith.*

ALONG HYDRO LINES



Leamington Loses Valued Commissioner

William J. Robinson, Chairman of the Hydro committee of Leamington Public Utilities Commission, died suddenly at his home in Leamington recently. Mr. Robinson, a former employee of Ontario Hydro in Windsor until his retirement, served on the Leamington Public Utilities Commission for four years. Prominent in lodge work in Windsor and Leamington, Mr. Robinson was a member of Leamington Lodge 290 A.F. and A.M., King Cyrus Chapter 190, Leamington, the Mocha Temple, London; the Moramos Shrine Club, Windsor, and the Sunparlour Shrine Club, Leamington, as well as the Leamington I.O.O.F. He is survived by his widow, two sons, a brother and two grandchildren.

Named Chairman

C. R. Thomas, R.I.A., Assistant Accountant, Hamilton Hydro-Electric Commission staff, has been elected Chairman of the Hamilton Chapter of the Society of Industrial and Cost Accountants of Ontario.

FORMER OTTAWA MANAGER DIES



S. W. CANNIFF

Stanley W. Canniff, former General Manager of Ottawa Hydro - Electric Commission died recently at his Ottawa home after an illness of several weeks.

Born at Napanee, a son of Mr. and Mrs. James Canniff, United Empire Loyalist descendants, Mr. Canniff took a four-year test course with the Canadian General Electric Company. After a further three-year association with this company, he joined the Ottawa Hydro staff as a substation and testing engineer in 1914. Appointed Assistant General Manager in 1930, he became General Manager in 1937 and served with distinction in this capacity until his retirement in 1951.

A prominent figure in the utility field for many years, he was President of the A.M.E.U. in 1944-45, and was made an honorary life member of the association in 1956.

CHIEF ELECTRICAL INSPECTOR NAMED "CHIEF LIGHTNING"

Ontario Hydro's Chief Electrical Inspector, E. W. McLeod, can now lay claim to a new albeit briefer title with his recent adoption into the Chippewa-Ojibway tribe.

During a colorful and unique ceremony in the Port Arthur Curling Club, with tepees and pine trees set up in the rink to give the right atmosphere, Mr. McLeod heard Ojibway Chief Frank Pelletier say:

"As Chief Electrical Inspector for the Province of Ontario you have done much to tame the mighty lightning which flashes from our skies, and made it a safe and wonderful servant to mankind.

"In recognition of these endeavors I give you the name of 'Lightning'."

To show that these were not merely empty words, Chief Pelletier presented "Chief Lightning" with a ceremonial Indian feathered headdress as an indication of his new dignity. He also announced that Mr. McLeod, henceforth, would be known as "Honorary Indian Chief Wassikon," the Indian name for lightning. "In choosing a name for honorary chiefs it's customary to liken it to something from the great outdoors," Chief Pelletier pointed out.



PALEFACE "Chief Lightning", resplendent in his Indian headdress (centre), and a young Ojibway brave follow Chief Frank Pelletier through the intricate steps of a tribal ceremonial dance after the investiture.

The whole ceremony was a surprise to "Chief Lightning," who thought he was in Port Arthur for the sole purpose of attending the spring meeting of the Ontario Chapter of the International Association of Electrical Inspectors.

However, he's more than pleased with his new title and the headdress that goes with it. ■



CERTIFY ENGINEERING TECHNICIANS

THE FIRST official certification of engineering technicians in Canada was carried out in Toronto recently when Prime Minister Leslie M. Frost presented certificates to six men who had qualified.

The ceremony, held in the Council Chambers of the Parliament Buildings at Queen's Park, was attended by officials of the Association of Professional Engineers of Ontario, including John H. Fox, P. Eng., Toronto, Association president; Dr. George B. Langford, P. Eng., of the University of Toronto, and Blake H. Goodings, P. Eng., Association field representative.

The 16,000 - member Association was the first engineering body in Canada to establish a plan to certify technicians in five grades.

At the recent ceremony the Premier presented engineering technician certificates to Ivan Malyk, Toronto, (grade 1); Peter Sulman, Port Perry, (grade 3); John A. Christopher, an Ontario Hydro employee, Niagara Falls, (grade 4); Robert M. Barnes, Toronto, (grade 4) and Evangelos Logothetis, Toronto, (grade 5). Jack T. Davis of Scarboro, an Ontario Department of Highways employee, was unable to attend the ceremony to receive his grade 4 certificate. Mr. Christopher, an industrial negotiator with the Commission's Frequency Standardization Division is shown in the accompanying photograph (left) with Premier Frost and APEO President Fox (right) following the presentation ceremony at Queen's Park.

Plan New Office At Lakefield

A contract for the erection of a new Ontario Hydro service depot and area office to be located at Lakefield was recently awarded to a Lindsay firm. L. T. Braunton and Company Limited, Lindsay, was awarded the contract, calling for work to begin immediately on the new centre.

Mitchell Closes Appliance Shop

Mitchell Public Utilities Commission closed its electrical appliance shop and wiring contract business on July 1 this year after 35 years' operation. All electrical appliances were placed on sale, and all work in connection with electrical wiring ceased, with the exception of contracts already under way, and service of appliances under guarantee.

East York Mourns Valued Employees

Colleagues and commissioners of East York Township Hydro-Electric Commission learned with regret of the recent death of a valued staff member, Joseph Hogg, at his home in West Hill, Ont. In his 69th year, Mr. Hogg had been employed by the utility for the past 26 years as a storekeeper and building superintendent.

The East York Commission was further bereaved by the loss of a well-known retired employee, Arthur Padfield, who died a few weeks ago at his Queensdale Ave. home. Mr. Padfield was associated with the East York Commission as a night trouble despatcher prior to his retirement.



LONG SERVICE RECOGNIZED

A LONG-SERVICE member of the St. Catharines Public Utilities Commission, Arthur Whitelock, retired recently after 43 years' association with the utility. Mr. Whitelock joined the commission early in 1914 just three months after its formation. He held the title of Office Manager and in September, 1949, became Treasurer. To mark Mr. Whitelock's retirement, a dinner was tendered in his honor by the Commission when he was presented with an easy chair and a 43-year service pin. Staff associates also expressed their esteem by the presentation of a purse. In the accompanying photograph Chairman W. B. Elliott adjusts the service pin presented to Mr. Whitelock, who is seated in the chair which he received.



O.M.E.A. HONORS VETERAN COMMISSIONERS

THREE Hydro commissioners in the Ridgetown - Blenheim district were honored recently with the presentation of O.M.E.A. long-service awards. Presentations were made to Andrew T. Ward, Ridgetown, who retired after 16 years' service as a utility commissioner, as well as William Neil and David Irving, both of Blenheim. Mr. Neil had 18 years' service with Blenheim P.U.C. to his credit while Mr. Irving served for 14 years before retirement from the same commission. The three guests of honor are shown here with the illuminated addresses they received during the evening. From the left are: Gordon H. Fuller, President of the O.M.E.A., who made the presentations, Mr. Irving, Mr. Neil, Mr. Ward and Reeve Howard James, Blenheim, who acted as chairman at the dinner gathering. D. P. Cliff, Ontario Hydro Commissioner and Secretary-Treasurer of the O.M.E.A., who was among the honored guests at the gathering, congratulated the local utilities on their initiative in arranging the first municipally sponsored ceremony of this type.

HYDRO INITIATES SUGGESTION PLAN

ONTARIO HYDRO has inaugurated a province-wide suggestion plan, which went into effect on June 3 this year.

Under the plan, the amount of each award will be based on the value of the suggestion. For example, a suggestion that results in a calculated net saving of $5,000 or more in the first year will qualify for a $1,000 award. Where the value of the suggestion adopted is of an intangible nature, the top award will be $100, while a minimum of five dollars will be paid for acceptable proposals.

There are approximately 19,000 Ontario Hydro employees throughout the province, and all are eligible to participate in the plan. An idea, which is adopted by the Commission, will only be considered for an award when it is not part of the assigned responsibility of the person submitting it.

The new system has been prepared after careful study and analysis of many suggestion systems, and is patterned to meet the particular needs of the Commission. The introduction and operation of the plan will be the responsibility of senior executive personnel and supervisory staff. A central Suggestion Committee has been set up to facilitate this work.

In the past, ideas and suggestions voluntarily submitted by employees have contributed greatly to the effectiveness of Ontario Hydro. The new plan is designed to stimulate this flow, and to provide a more definite channel for handling ideas originating with the staff.

Named to New Accounting Post

The appointment of Cecil E. Hodgson to the newly created position, Manager of General Accounting, was announced recently by K. C. Coleman, Director of Accounting for Ontario Hydro. Mr. Hodgson, who has been the Regional Accountant in the Commission's Western Region with headquarters at London, assumed his new duties in Head Office, Toronto, on June 1, 1957, reporting to the Director of Accounting. D. V. Browning, the Organization and Methods Officer for the Accounting Division, has been transferred to London as Regional Accountant succeeding Mr. Hodgson.



FORMER COMMISSIONER HONORED

A PIONEER member of Brockville Public Utilities Commission, Harry S. Brown, now in his 95th year, was honored recently with the Ontario Municipal Electric Association's long-service award. Mr. Brown retired as Chairman of the P.U.C. in 1950 after 29 years as a member. D. P. Cliff, Ontario Hydro Commissioner and Secretary-Treasurer of the O.M.E.A. (left), presented the scroll which reads in part: ". . . in grateful recognition of contributions to the progress of the municipal Hydro systems of this province by devoted service as a Hydro Commissioner . . . and loyalty to the ideals of our province-wide hydro-electric system." He was assisted by Henry Walter (right) present Chairman of Brockville P.U.C. Born in Hamilton in 1863, Mr. Brown went to Brockville some 70 years ago, where he conducted a plumbing business for more than half a century. He was first elected as a utility commissioner in 1922, retiring at the age of 87, after serving as Chairman from 1945 to 1950.



SHORT RETIREMENT

EMERGING from retirement, Waterloo's 45-year-old street lights are back in business after a very short rest period. The standards that once illuminated the King Street business section in Waterloo were removed in 1955 and replaced with more modern fluorescent units. Because of the good condition of the old standards, Waterloo Public Utilities Commission decided to put them up for sale. For $20, prospective buyers were able to secure a standard with five unbroken globes.

Quite unexpected was the rush of buyers. Some 45 eager purchasers cleared the market and toted off their prizes to some unlikely and unusual settings. The proud owners include a Twin City school teacher and a local businessman, who have installed the standards at their summer cottages, and also a farmer near Chatham. Other standards were sold to estate and cottage owners in Preston, Fordwich, Elmira and Shantz Hill.

Four standards are in use at the home of Harry Ritter, West Montrose, whose home is shown in the accompanying photograph (with two of the standards in the immediate foreground and one in the right background). Mr. Ritter is a manual training teacher and owner of a new home at Crowsfoot Corners. He placed two 450-pound cast-iron standards at the entrance to his driveway and two more beside his barbecue pit. They're proving to be a good investment — he has been offered double his purchase price by passers-by.

Prominent Former Commissioner Passes



J. D. McINNES

Active in many Sudbury groups and a well-known retired member of the local hydro-electric commission, John D. McInnes, 68, died recently in St. Joseph's Hospital, Sudbury. A leading figure in the commission's operations and one of the most prominent men in civic affairs, Mr. McInnes retired last year after serving the local utility for 21 years, 16 of which had been spent as Chairman. Late in March this year he cut the traditional red ribbon at the official opening of the new headquarters building of the Sudbury Hydro - Electric Commission, which was dedicated in his honor. He had also been active in municipal politics, having served on the city council for four years. A keen conservationist, Mr. McInnes was an active member of the Sudbury Game and Fish Protective Association for nearly 50 years.



RETIREMENT PRESENTATION

Three decades of devoted service to East York Hydro Commission, latterly as cashier, culminated in a festive dinner and presentation for Herbert Watson on the eve of his recent retirement. Mr. Watson (second from right) is shown as he was presented with a leather travelling bag by Chairman C. J. Ellerbeck on behalf of the East York Commission. Echoing Mr. Ellerbeck's sentiments are Secretary-Treasurer Bruce Wallace (left) and Superintendent James Wickiam.

FOR SALE

(a) 6 only, Kearney Tripomatics—3 shot—all fused—Cat. No. 12177, 200 amps. 7.5 kv.; (b) 32 only, 200 amp. Fuses for above; (c) 1 only Switch Puller and Lifter; (d) 3 only, S & C (Powerlite) Refill Units size 4, Cat. No. 254100, kv. 34.5, Amp. 100/65E, TCC No. 161-4. **Apply to W. D. Stalker, Manager and Secretary, Simcoe P.U.C., 45 Sydenham St., Simcoe, Ont.**

Carleton Place Plans Street Lighting Program

A major program of improvements to street lighting and extensions to the electrical distribution system is being undertaken by the Carleton Place P.U.C. at a cost of $33,180. Chairman E. G. Patterson said the program will be financed partly from the proceeds of a $15,-180 debenture issue, as well as from available funds and estimated income.

COMING EVENTS CALENDAR

O.M.E.A. and A.M.E.U. officers have announced the following tentative schedule for September and October: Sept. 3 and 4 — Georgian Bay Municipal Electric Association Annual Meeting — Midland; Sept. 12 and 13 — Eastern Ontario Municipal Electric Association Annual Meeting — Peterborough; Sept. 19 and 20 — Thunder Bay Municipal Electric Association Annual Meeting — Fort Frances; Sept. 23 and 24 — Western Ontario Accounting and Office Administration Annual Meeting — London; Sept. 25 — District No. 6 O.M.E.A. (known as the Grand Valley Municipal Electric Association) Annual Meeting — St. Marys; Oct. 24, 25, 26 — Workshop of Distribution Practices—Toronto area—A.M.E.U.

"HOT" LINE TECHNIQUE

(Continued from page 5)

facturers responded by supplying the necessary tools. Since these are now available in all categories from manufacturers, Hydro just recently ceased the manufacturing process it had helped to pioneer.

In general, "hot" line tools are designed on the principle that higher voltages require longer tools. The limit of approach to 230,000-volt circuits is controlled by the length of the tools developed over a period of years. Hand wood tools are usually eight feet long and the longest lifting pole is 14 feet in length. The tools are made from straight-grained, clear, kiln-dried Sitka laminated spruce, which combines lightness and strength. The wood is covered with a protective coating of spar varnish or plastic to guard against moisture absorption, and ensure complete insulation. While all these tools must undergo a rigid inspection including severe, high-voltage testing at the manufacturers, Hydro subjects them to periodic retesting at the research laboratory to insure against deterioration and excess moisture absorption.

In view of their many advantages, live line methods seem destined to play an increasingly predominant role in the future of Hydro's transmission line maintenance program. The customer benefits from service continuity, the electrical utility is provided with a rapid and reliable means of preventing or repairing breakdowns, while the lineman himself enjoys the convenience and added safety of working his normal daylight shift. The present Toronto-Burlington project is a milestone in live line procedure that will go a long way toward extending these benefits in the years to come. ■

LONG SAULT VETERAN

(Continued from page 15)

from their original locations with the boulders acting as ballbearings, while the current provided the motive force.

Did Large Ship Flounder?

A testimonial to the turbulence of the treacherous rapids is the assortment of iron scraps found scattered along the dry riverbed. These include two pieces of steam boiler grating, several small anchors and what may have been a steam winch. It appears likely that a fairly large ship broke up during a rapids run, and numerous deep pools which have yet to be pumped out may eventually give added support to this theory.

Captain Stephenson was particularly surprised at the dangerous shoal at the head of the cataract. "None of us ever thought there was a shoal like that right below the head of the rapids."

The Long Sault area was the most treacherous of the whole International Rapids Section of the St. Lawrence. Here, the river drops some 45 feet over a nine-mile stretch before levelling out opposite Cornwall.

The dry riverbed, exposed to the air after centuries, will not remain dry for long however. When flooding for the St. Lawrence Power Project occurs in 1958, water will again flow over the rocks and shoals of the Long Sault. But because the river at this point will be approximately 35 feet deeper than formerly, the Long Sault Rapids will have ceased to be — in all but memory. Only for Captain Stephenson will there remain a special meaning to this portion of the river.

"I still say it was a foolish thing, going down the rapids like that," he says. But in his eyes there is a glint that, perhaps, belies his words. ■

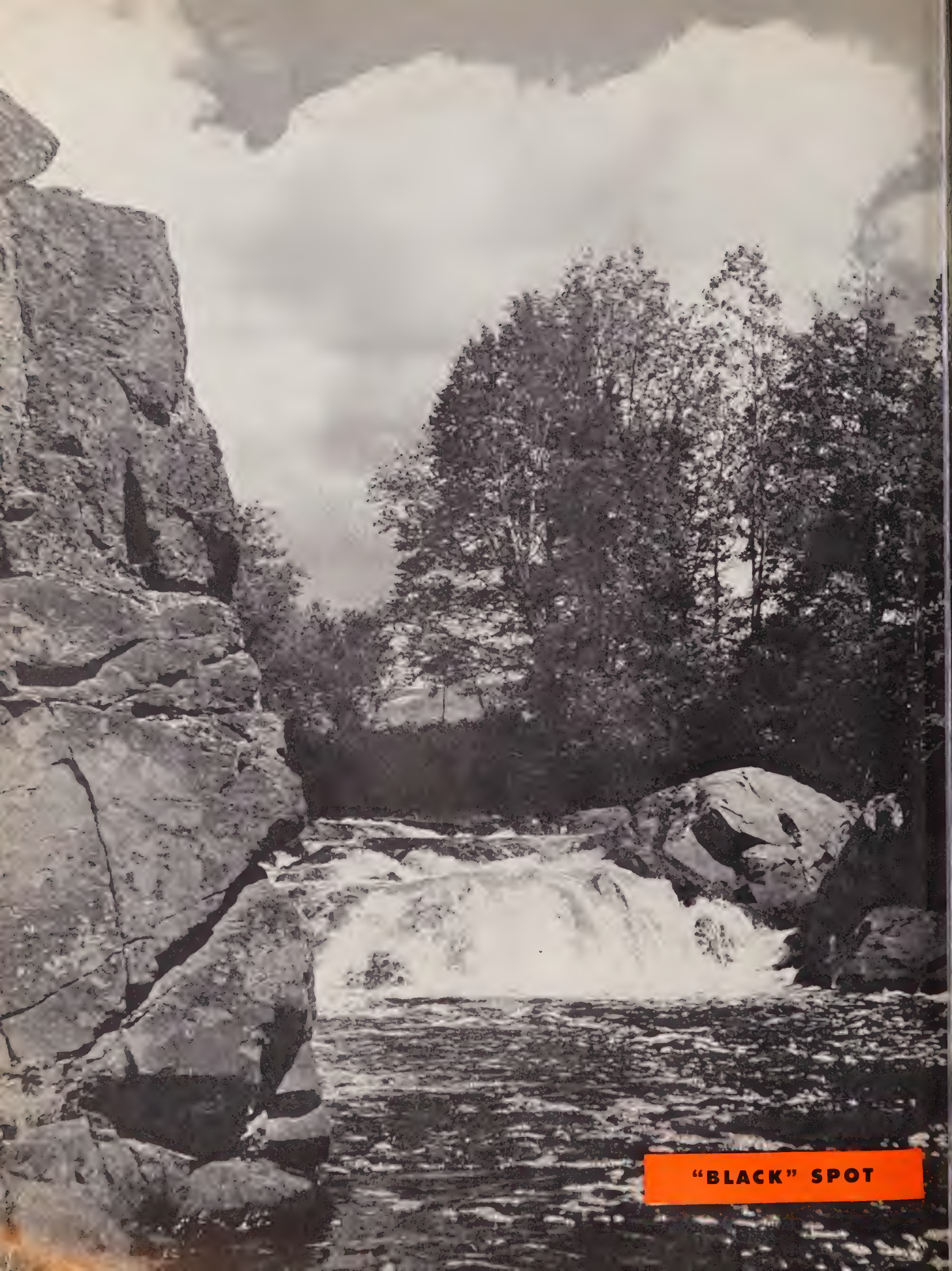
BY RAIL AND RIVER

(Continued from page 11)

Independent Order of Oddfellows, Canadian Order of Foresters, Woodmen of the World, Orange Lodge and Canadian Legion. The Morrisburg and District Fish and Game Protective Association is actively engaged in restocking game fish and in building up the pheasant population of the area.

Not content with sitting back to await the completion of the Seaway and Power Project, Morrisburg's citizens are taking positive action to put to best advantage the potential of their new position.

An elderly resident and a third generation descendant of United Empire Loyalist pioneers best exemplified the new spirit of the community recently when she was asked to remark on the changes being wrought in her beloved village and the St. Lawrence River. Pointing out that she will regret the passing of the canals, she added however: "Morrisburg can count itself fortunate in one respect. Progress will bring with it many of the new things we need, but not at the expense of most of the old things we love. We can look to the future without losing sight of the past." ■


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ONTARIO HYDRO News

SEPTEMBER, 1957



ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
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SEPTEMBER, 1957

VOLUME 44, NUMBER 9

INVESTING IN THE FUTURE

THIS issue contains the significant announcement that Ontario Hydro is considering properties at Long Branch and on Burlington Bay (between Toronto and Hamilton) as sites for two thermal-electric stations, which will be among the largest in the world. Representing a capital investment of $250 million, the first of these stations will have an estimated ultimate capacity of 1,800,000 kilowatts — more than double that of the Commission's St. Lawrence Power Project. Demonstrating a wholesome confidence in Ontario's continued development in the next decade or so, the plans for these new plants are based on Commission load studies indicating that additional capacity will be required by 1961. This is a particularly striking revelation, in view of the fact that the 820,000-kilowatt St. Lawrence development and the expanded Richard L. Hearn thermal-electric station with a capacity of 1,200,000 kw. will be in full operation by 1960.

The new major thermal-electric installations will, of course, be integral units of the Southern Ontario System. However, their strategic location in the centre of one of the most rapidly-expanding areas in Canada today, will enable them to make their maximum contribution to this prosperous sector.

Southern Ontario, incidentally, is not the only part of the province which is flexing its muscles these days. Gratifying evidence of this fact can be found in further announcements in this issue that Ontario Hydro is to proceed immediately with the construction of a new thermal-electric station in the Fort William-Port Arthur area, and the installation of an additional 45,000-kw. generator at its strategic, 181,000-kw. hydro-electric plant on the Abitibi River in northeastern Ontario.

The new thermal-electric plant at the Lakehead, which is scheduled for service in 1961 with an initial capacity of 100,000 kw., is destined to make a historic contribution to the development of northwestern Ontario. Serving an area where power demands have increased by almost 250 per cent since 1945, the new plant's design will permit its enlargement to a 1,000,000-kilowatt capacity as required.

Thus this new thermal-electric station will assume a role of stellar significance by meeting increasing power demands, and by providing support for hydro-electric stations during such contingencies as low water.

The decision to meet a substantial portion of the future electrical requirements of northwestern Ontario by thermal-electric generation emphasizes the fact that the few remaining hydraulic sites in this area will not be adequate to cope with the heavy demands anticipated in the next few years. Ontario Hydro is currently engaged on the largest expansion program ever undertaken in northwestern Ontario. Six separate hydro-electric projects, with a combined capacity of 209,000 kw. are making rapid progress, and the remaining hydraulic sites will be developed as conditions warrant.

Commenting on present prospects for nuclear-electric generation in Canada today, Chairman James S. Duncan recently pointed out that the Commission is fully aware of the desirability of using uranium from Ontario mines rather than imported coal. At the present time, however, nuclear science has not progressed to the stage where it is possible to forecast accurately when energy produced by nuclear-electric plants in Ontario will be available at a cost competitive with conventional thermal stations. Thus, the Commission, in building additional coal-fired plants to meet the fast-growing demands of industry and the general public at the lowest cost consistent with satisfactory service, is taking the only course open to it at present. (Attention is directed to Mr. Duncan's statement relating to this matter which appears on Page 26 of this issue).

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PATTERN OF PROGRESS

THIS decorative screen creates what might be called "an arabesque effect" in the main floor business office of Brantford's new public utilities building, and places the public service counter in a new perspective. The atmosphere of spaciousness in this section of the modern headquarters is enhanced by the mezzanine passageway (above the service desk), which provides access to the utility's executive offices and board room. A full description of the official opening ceremonies appears on page 16 of this issue.



Construction to Date Shows St. Lawrence Project

ON SCHEDULE

THE bright promise of first power from the international St. Lawrence Power Project in 1958 grows daily closer to fruition as over 5,200 workers push advanced-stage construction on the Ontario Hydro section of the impressive development.

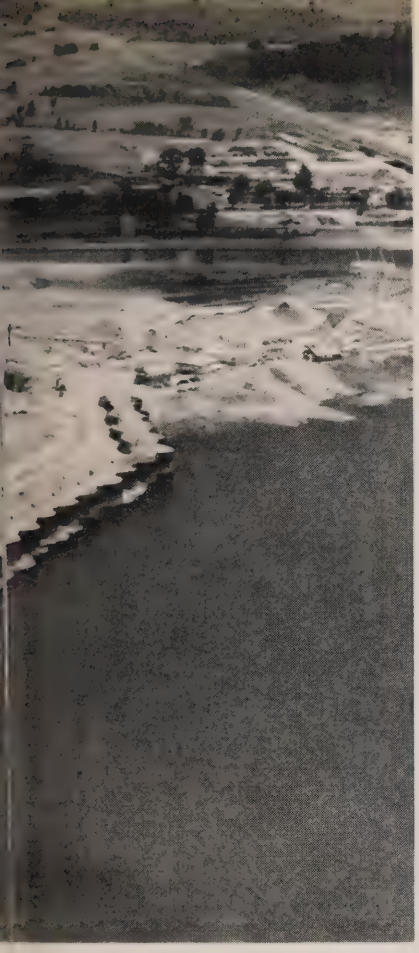
Now approximately two-thirds complete, the project is to go into operation in about one year. It is expected that, at that time, at least four of the 16 generators in the Robert H. Saunders-St. Lawrence Generating Station will be placed in service. Ultimate completion of the project is scheduled for 1960.

Actually, work on the development is being carried out over a 40-mile area on both sides of the river between Cardinal and Cornwall. A wide range of equipment from house-moving machines to giant dredges is engaged full-time. Hundreds of heavy trucks and earth-movers shuttle back and forth at many points, literally changing the topography of the countryside.

Construction, however, is concentrated at the powerhouse site near Cornwall where the Robert H. Saunders station is being built adjacent to its United States counterpart. The two massive power structures will span the river between Barnhart Island in the U.S. and the Ontario shore, spectacular evidence of the mutual co-operation between Ontario Hydro and the Power Authority of the State of New York, partners in the 1,640,000-kilowatt St. Lawrence Project.

When the development is completed in 1960, these two agencies will share this new power source, each taking 820,000-kilowatts of hydro-electric power.

A survey of progress to date shows that approximately 70 per cent of the concrete scheduled to go into the Ontario Hydro powerhouse has been placed. This work is going ahead at such a rapid pace that by the end of this year, authorities say,



AERIAL VIEW of the Ontario Hydro powerhouse indicates the advanced stage of construction. Visible (centre, right) are the erection bay and partially completed administration area of the large generating station. The Cornwall dyke stretches north and west from the powerhouse.



SOME 725,000 cubic yards of concrete have been placed in the Robert H. Saunders-St. Lawrence Generating Station. On the right, construction of the headworks for the 3,300-foot long powerhouse is progressing. Installation of the generating units is in full swing (left).

THIS 200-foot radio tower dominates the scene at Hydro's nearby St. Lawrence Transformer Station. An electrician (lower right) is connecting up the "service drop" to the meter-type house, which accommodates the radio equipment.



concrete placing in the powerhouse will be 90 per cent complete. Meanwhile, turbine imbedded parts for 11 of the 16 units have been installed, and work is progressing steadily on the installation of other mechanical parts.

In May of this year, work on a new phase of the powerhouse construction program was launched when workmen began the placing of structural steel for the erection bay and administration building, which will surmount the Canadian powerhouse at the northern end.

Some 210 feet long and 120 feet wide, this building will be the

(Continued on Page 4)



△
CHANNEL IMPROVEMENT is proceeding in several areas along the river. Here an eight-cubic yard shovel is engaged in dredging work at Iroquois Point above Iroquois Control Dam.

"nerve centre" of the powerhouse — the point from which the operators will control the eventual 16 generating units. Containing more than 1,000 tons of structural steel, the building will consist of six floors, with an observation platform on the roof.

"Built-in" Facilities

One interesting feature of the building will be its "built-in" facilities for visitors. A penthouse or observation roof, surmounting six storeys of control, maintenance and office facilities, will provide an excellent vantage point for viewing the powerhouse area.

North of the powerhouse site, another busy work area pinpoints the 3½-mile Cornwall dyke, which will abut the powerhouse and extend in a northwesterly direction. Compacted glacial till "borrowed" from the immediate area is being placed in the dyke, which will help to contain the headpond for the development. With favorable weather during the past few months, approximately two-thirds of the work in this area has been completed.

Two important structures being built in association with the twin powerhouses are the Long Sault Dam, situated between Barnhart Island and the United States shore, and the Iroquois Control Dam, located approximately 35 miles upriver. Both these concrete structures are in late stages of construction under the direction of the Power Authority of the State of New York, the last "pour" of concrete at the Iroquois dam having been completed during August.

Channel Improvement

Ontario Hydro is responsible for channel improvement work in several important areas along the river. Excavation and dredging being carried out at Iroquois Point, near the Iroquois Control dam, is progressing favorably with more than half the excavation completed. Good progress is also being made at nearby Point Three Points.

Other channel improvements include work at the Spencer Island

pier, which has been completed. Dredging is underway upstream from Galop Island where the dry excavation has been completed, with the exception of the removal of the cofferdams. Excavation work on Canada Island and dredging in the Cardinal area has also been started.

At the new St. Lawrence Transformer Station, which will receive 230,000 volt power from the Ontario Hydro powerhouse next year, approximately 65 per cent of the work involved in the 1957 construction stage has been finished. This large transformer installation will carry the power from the new Robert H. Saunders—St. Lawrence Generating Station into the Ontario Hydro system, and work designed to handle this aspect of the development is already ahead of schedule.

One unique aspect of the project is the relocation and rehabilitation program, which has been made necessary to clear land required for flooding purposes. The relocation of 40 miles of Canadian National Railway track on the main line between Montreal and Toronto is essentially finished, and for more than four months freight trains have been operating over the new double-track sections. Late in July passenger traffic was also diverted to the new line marking the turning-over of this new section of line to the C.N.R.

Work is being completed also on five new stations, which will serve Cornwall, Morrisburg, Iroquois, Ingleside and Long Sault, all of which are on the new section of track.

A similar relocation operation is underway over about 35 miles of Highway 2 between Cornwall and Iroquois. Some sections of this road have been completed, including paving, and work is proceeding favorably on the remainder.

The rehabilitation program itself calls for the relocation of the homes, businesses, churches and schools of some 6,500 people situated, for the most part in seven small villages and in one section of Morrisburg. This project is now in an advanced stage, and Hydro engineers estimate the work to be 70 per cent completed.

Iroquois, has now been almost completely relocated in an entirely new townsite, 1½ miles north of the old village. Demolition of buildings in the old town is underway.

Also virtually completed are Ingleside and Long Sault, to which residents of six smaller communities are being moved. Meanwhile, Morrisburg is undergoing a major change with the main business section being relocated on the north-east side of the municipality. Project Director Gordon Mitchell has stated that virtually all work in connection with the rehabilitation

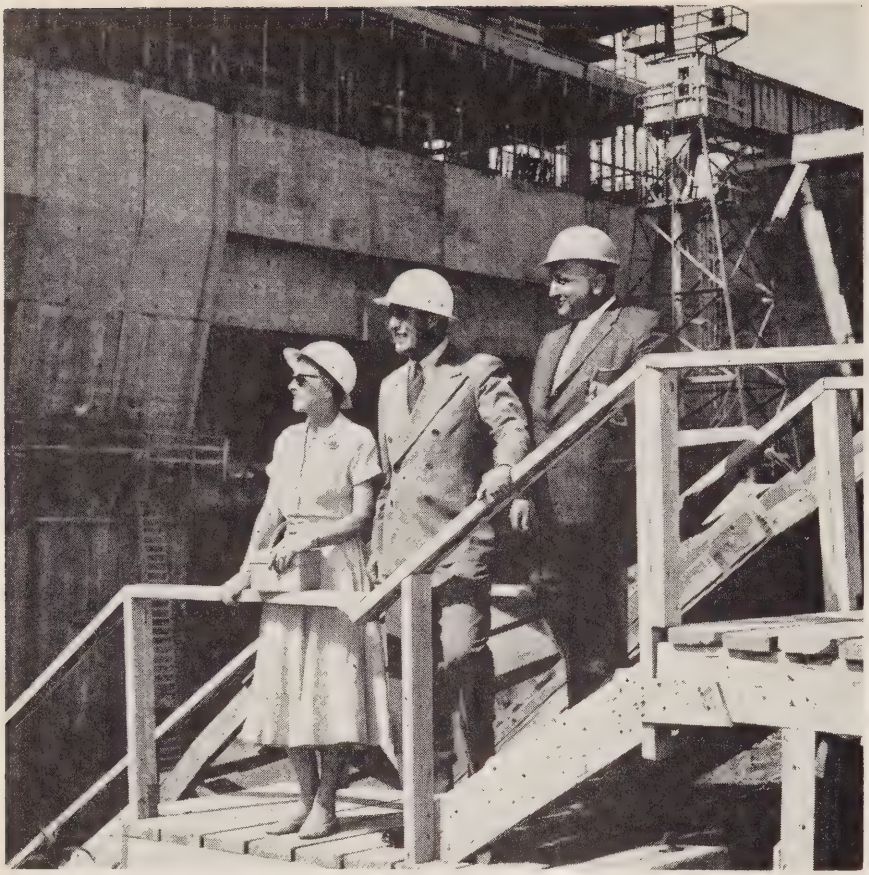
(Continued on Page 6)

CONSTRUCTION associated with the relocation of Ontario Highway No. 2 is progressing satisfactorily. Here grading is being carried out at Hoople Creek Bridge, midway between the new towns of Long Sault and Ingleside.



A CANADIAN NATIONAL RAILWAYS diesel locomotive approaches the new overpass for Highway 31, which runs north from Morrisburg to Ottawa. Both passenger and freight trains are now running over a 40-mile section of main C.N.R. line which has been relocated by Hydro.





TRANSPORT MINISTER VISITS PROJECT

During a recent extensive tour of the St. Lawrence Seaway and Power Project, Canada's new Minister of Transport, Hon. George H. Hees not only saw all phases of seaway work, but inspected progress associated with construction of Ontario Hydro's Robert H. Saunders — St. Lawrence Generating Station. He also visited the relocated communities of Iroquois and Ingleside. Accompanied by Mrs. Hees (left) and Charles A. Gavsie, President of the St. Lawrence Seaway Authority (right) the Transport Minister is shown as he toured the powerhouse construction area.

100,000TH VISITOR

An important tour milestone for 1957 was reached at Ontario Hydro's St. Lawrence Power Project during the latter part of August when the 100,000th visitor taking a conducted bus tour was recorded. By a happy coincidence this visitor was an engineering student, Richard A. Haas, 20, from Brooklyn, N.Y. His companion on the tour was a member of a well-known Cornwall family, Miss Barbara Ann Horovitz, daughter of the late former Mayor Aaron Horovitz and Mrs. Horovitz.

These two young people attend college at Troy, N.Y. Mr. Haas is a fourth year mechanical engineering student at Rensselaer Polytechnic Institute. Miss Horovitz is entering her second year at Russel Sage College where she is studying journalism.

ON SCHEDULE

(Continued from Page 5)

will be completed by the end of this year.

The entire construction area, from Cornwall to Cardinal along the river, remains today a vast scene of activity. But already there are signs indicating that the pieces in this complex project are beginning to fall into place. —*by Gary Smith.*

Former Chairman Honored

Dr. Richard L. Hearn, former Chairman of Ontario Hydro and now an engineering consultant to the Commission (left in the photograph below), is shown as he was recently presented with the Sir John Kennedy medal in recognition of his outstanding engineering achievements. The presentation was made during the 71st annual meeting of the Engineering Institute of Canada at Banff, Alta., by President V. A. McKillop, General Manager of London (Ont.) P.U.C. The former Hydro Chairman was honored by the Engineering Institute in 1954 with the presentation of the Julian C. Smith medal. This year marked the first time in its



50-year history that the Sir John Kennedy medal has been awarded to two recipients, with Dr. I. R. Tait, retired Chief Engineer of Canadian Industries Ltd. sharing the honor with Dr. Hearn (C.P.R. Photo).

Teachers' School



△

EVIDENTLY these "teacher-learners" (left to right): H. N. McCullagh, East York Collegiate; H. R. Moir, Cobourg District Collegiate and Donald McCrae, Agincourt High School, found the stripping and assembling of motors and controls during the course an absorbing occupation.



△

INSTRUCTORS D. F. McIntyre, Frequency Standardization Division, and H. E. Jonasson, Canadian General Electric Company, Toronto (standing), discuss motor components with their "pupils," Douglas Foley, St. Michael's Academy, and John W. Hodgson, School for the Deaf, Belleville.

WHILE it is held that it's not news when a dog bites a man, it is news when a man bites a dog. On this basis it's news when teachers go to school, not to teach but to be taught. Such a school was held recently at the Commission's A. W. Manby Service Centre at Islington (west of Toronto) when 37 teachers from various Ontario secondary schools came to take a one-day course on electric motors and motor controls.

The school, sponsored by the Farm Electrification Bureau of the Canadian Electrical Manufacturers Association, in collaboration with Ontario Hydro and the Vocational Courses Section of the Ontario Department of Education is held annually. Designed to enable technical teachers to bring their knowledge of motors and controls up-to-date it also provides them with an opportunity to pool information and exchange ideas on teaching methods with their colleagues.

The school was practical, too, and one of its sessions included dismanting a ¼-horsepower motor and control, reassembling them and testing them when they had been connected.

This practical session also demonstrated motor construction and operation. Experienced C.E.M.A. instructors were on hand to furnish additional information on various points of particular interest to the "pupils" relating to the best methods of stripping and reassembling motors.

The motors used for instruction were the 25-cycle type, which had been stripped and rebuilt for 60-cycle operation in the Commission's Frequency Standardization engineering shop. These motors were donated to the teachers for demonstration purposes in their schools, while the associated motor controls were provided by seven electrical manufacturing firms.

During the forum on motors and controls, with John Brittan, Canadian Westinghouse Company, Hamilton, acting as moderator, many aspects of the subject were touched upon, not the least important of which concerned the safest voltage for use in schools.

A busy day's program included a visit to the hydraulic models of the St. Lawrence Power Project, inspection of the warehouses and the motor rewind shop at the service centre and a talk by Bruce Newman, Sangamo Company Ltd., on the fundamental principles of motors, and a film on controls.

Arrangements for the course were

(Continued on Page 10)

A Brand New Community Celebrates Centennial

IROQUOI



△

SPACIOUS is the word for Iroquois! This aerial view of a section of the venerable community in its new location includes the 29-unit shopping centre (foreground).



△

BROCKVILLE HIGHLAND PIPE BAND, playing stirring Scottish airs, preceded the Ontario Hydro float in the big centennial parade.

ALTHOUGH a community with 100 years behind it, Iroquois is beginning its second century in brand new clothes, revitalized and confident of a bright new future.

Completely relocated by Ontario Hydro so that its old site could be cleared to permit completion of the St. Lawrence Seaway and Power Project, Iroquois recently marked the virtual completion of its rehabilitation with a three-day centennial celebration as Ontario's newest "old" village.

A symbolic first council meeting in the new town, a mammoth parade portraying the old and the new in Iroquois' history, a visit by the Hon. Leslie M. Frost, Prime Minister of Ontario, and a host of other festivities marked the village's 100th birthday party.

The centre of all this activity was Iroquois' new 29-store shopping centre, where a crowd estimated at five times the village's population of 1,200 turned out on August 17, to attend a street carnival and witness the parade and such activities as frog-jumping and pie-eating contests.

Highlight of the Iroquois centennial celebration, however, was a more solemn event, which took place the previous day when Reeve Lloyd Davis presided at the first meeting of Iroquois Council to be held in the confines of the new townsite. A bright afternoon sun seemed to beam its approval on the large audience that took seats before a platform in the shopping centre parking lot to witness the historic occasion.

A special guest of the council for this first meeting was Premier Frost who took a seat at the council table

100 YEARS YOUNG

beside Reeve Davis. Rev. A. D. MacLellan, Pastor of Knox Presbyterian Church, declared the meeting duly constituted, and Reeve Davis conducted the business session as the council passed several items of business.

Following the council meeting, Mr. Frost and Reeve Davis took seats on the platform with some 15 other guests including officials of both the Canadian and Ontario Governments, district clergymen, as well as representatives of Ontario Hydro, headed by First Vice-Chairman, W. Ross Strike.

Introducing Mr. Frost as the chief speaker, Reeve Davis said that the centennial constituted the greatest moment of his life.

"Never, to my knowledge, has a town had the opportunity of celebrating its 100th birthday while in the course of moving to a completely new location.

"Generously Treated"

"We have been generously treated by Ontario Hydro," Reeve Davis told his audience, "and when you tour our new community, and see how it is laid out, we want you to be proud with us — because we are truly proud."

During his address, Premier Frost recalled that the Village of Iroquois had been incorporated in 1857. The characteristics of steadfastness and sincerity manifested by the hardy pioneer residents were still evident in the citizens of Iroquois today, he stated.

"Two years ago your Reeve and I drove past the place where we are now standing. We saw two large machines at work. We both had misgivings at that time, but we were fortified by the knowledge that we had, at our disposal, the best Canadian engineering skills, and by the determination that no single person would be treated unfairly during the rehabilitation period.

"Now it is a great thrill to stand here with you and see what a transformation has been accomplished. I pay tribute to the people of Iroquois and of the entire Seaway Valley, and look to a bright future for this area."

Co-operation Praised

W. Ross Strike, First Vice-Chairman of Ontario Hydro, also paid tribute to the people of Iroquois in presenting to Reeve Davis, on behalf of the Commission, the deed to the new Iroquois Village Hall and a guest book, which will be placed in the foyer of the completed building.

(Continued on Page 10)



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TOWN FATHERS and distinguished guests (reading clockwise): Village Clerk Milburn Hyslop, Councillors B. J. Saver and C. V. Ellis, Premier Leslie M. Frost, Reeve Lloyd Davis, Councillors H. A. Gilmer and J. L. Fetterley and Rev. A. D. MacLellan assemble for the first meeting of the village council within the confines of the new townsite.



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M. E. BRADDEN, Hydro's Rehabilitation Information Officer (left), is presented with a pen-and-pencil set by Reeve Davis on behalf of the villagers for his leadership in arranging the successful centennial celebrations.

"I want to commend the co-operation given to our Hydro staff by all the people of Iroquois, and especially those who were in authority and with whom it rested to make the final decisions," Mr. Strike said. "I think we would search for a long time before finding another municipality which, having existed for 100 years, finds itself able to wipe the slate clean and start anew."

In keeping with the solemnity of the occasion, Iroquois clergymen also took part in the program. Rev. Ralph Smith, Rector of St. Luke's Anglican Church, pronounced the invocation prior to the addresses, and Rev. Gordon Dangerfield, Minister of Iroquois United Church, gave the benediction at the close.

The platform guests included: A. C. Casselman, M.P., Grenville-Dundas; Fred M. Cass, M.P.P., Grenville-Dundas; Hon. Ray Connell, 2nd Vice-Chairman, Ontario Hydro; Lt.-Col. A. A. Kennedy, Ontario Hydro Commissioner; James Auld, M.P.P., Leeds; Peter Manley, M.P., Leeds; George H. Challies, Chairman, The Ontario-St. Lawrence Development Commission; Fred Corneill, representative of the St. Lawrence Seaway Authority; Gordon Mitchell, Director, St. Lawrence Power Project, and Harry Hustler, Director of Property, Ontario Hydro, and A. E. K. Bunnell, Ontario Department of Planning and Development, Toronto.

Lays Cornerstone

At the completion of the ceremony, the audience moved out of the parking lot and to the site of the new town hall where Mr. Frost laid the cornerstone for the building. Later, accompanied by Reeve Davis, he toured the new town, inspecting the recently completed schools, churches and several of the houses which were moved to the site from the old village.

The centennial celebration actually began on the previous Wednesday evening with a street dance at the shopping centre parking lot. A softball tournament and teen-age driving rodeo were other highlights of the long list of events which continued through Saturday.

For the parade, residents dug deep in their "new" attics and came up with a variety of old time costumes, including the traditional bowler hats and imposing black bonnets. An early vintage automobile, a family surrey, a Euclid truck and a number of new model cars also took part. Clowns, recruited from the ranks of Iroquois' menfolk, entertained the children.

But most important of all, the people of new Iroquois, by the industry and enterprise displayed in preparing for the observance of their 100th birthday, demonstrated that the new community is not lacking in civic spirit and pride.

—by Gary Smith.



△

TYPICAL of many municipal centennial observances, the "whiskerino" contest evoked both public interest and amusement. Several "verdant" contestants (left to right): Harold Merkley, Lorne Keeler, Raymond Davis, Ken Easter, Sam Leckie and Charles Beaudoin, who displayed particular "enterprise" during the contest were noted as they lined up for the judges' scrutiny.

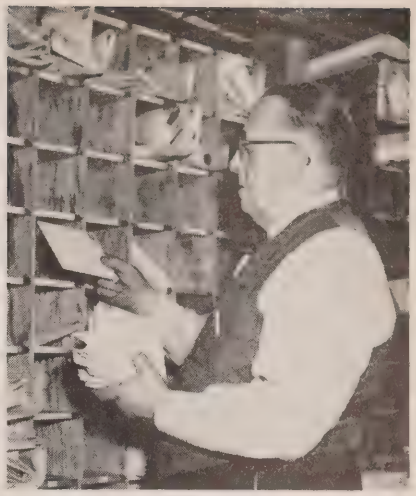
TEACHERS' SCHOOL

(Continued from Page 7)

made by R. Campbell McNeil, Canadian Electrical Manufacturers Association, and by H. W. Flegg, Field Publicity Supervisor, Ontario Hydro, who joined with Frank O. Price, Standardization and Materials Engineer, in welcoming the teachers. F. C. Carter, Moloney Electric Company, and Chairman of the CEMA Rural Electrification Committee, acted as chairman at the dinner, which concluded the course. During the dinner, A. M. Moon, Assistant Superintendent of Secondary Education in Ontario, congratulated the teachers on their interest in the valuable course.

— by Frank C. Wood.

THIRD-GENERATION POSTMASTER RETIRES



IN 1954 Roy Pierson was awarded the Queen's Medal as a token of some 50 years' service with the Post Office Department. ▷

CAINSVILLE Post Office served the community for 103 years. This operation has been transferred to nearby Brantford Post Office. ▽



In 1856 the Atlantic Telegraph Company was organized to construct telegraphic communication facilities between Great Britain and the United States. Around the same time John Pierson became postmaster at Milverton, Ont., and established a tradition of postal service for the Pierson family that was to be maintained by his son and grandson for more than a century.

A few weeks ago, Cainsville Post Office near Brantford, closed its doors for the last time, and the third-generation Pierson — Roy Pierson, Chairman of Brantford Township Hydro-Electric Commission-poet-musician—retired as postmaster.

Mr. Pierson's father, S. A. Pierson, succeeded his father as postmaster at Milverton, and held the post until 1889 when he resigned, and later took over the post office at Cainsville when he purchased a grocery store in that community. The store was operated until the death of the elder Pierson in 1930. Roy Pierson had come into the picture in 1900 when he started to serve in the capacity of assistant postmaster. He was appointed Cainsville's postmaster in 1931.

Completing the Pierson family's record of postal service, which is believed to be unique, was Roy's Uncle Charles, who started work with the railway mail service in the late 1880's, and Charles's son, Albert, who also entered the railway mail service in May, 1913, retiring on June 10 this year.

"I was supposed to retire on the same day" said Roy Pierson, "but arrangements could not be made in time to transfer the office to Brantford."

Mr. Pierson is perhaps even better known in the utility field than he is in the postal service. Presently Chairman of Brantford Township Hydro, he has held that office continuously for 36 years. Mr. Pierson is also a past president of O.M.E.A. District 5 and a former district director of the parent organization.

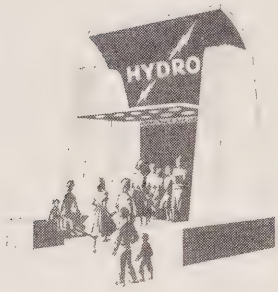
In the early days of the local utility, he and a fellow-commissioner, George F. Unger — emulating Daniel Detweiler — travelled hundreds of miles by horse and buggy to promote expansion of electrical service in their municipality by telling farmers and other potential customers about the benefits of Hydro.

The ex-postmaster's popularity with the people of Brantford Township has been made evident by the number of acclamations he has received, for only on two occasions did he have opposition for a seat on the local commission, and each time he emerged the victor. His career of public service has also included the chairmanship of the Brantford and Suburban Planning Board of which he is still a member.

Mr. Pierson, who says he hasn't had a holiday in 50 years — "because the postal service doesn't stop for holidays," plans a few long trips during his retirement to visit old friends and relatives.

No doubt he will also find more time to indulge in his favorite hobbies — poetry and music. ■

HYDRO



Colorful Hydro displays at Toronto's C.N.E. and showings throughout Ontario attract interested audiences



A GLIMPSE into the past when electricity was a luxury for the few; an animated model of an actual hydro-electric generating station, and a scale miniature of a modern Ontario farm!

These were just a few of the outstanding attractions in the Commission's display at the Hydro Building during the 79th annual Canadian National Exhibition in Toronto this year.

Consisting of an array of models, murals, maps and diagrams, and with a wide sampling of domestic electrical appliances in the Toronto Hydro section of the building—this year's displays stressed the theme of the versatility, dependability and economy of electricity in Ontario today.

The public had its first look at the impressive and colorful exhibits during a press preview in advance of the official opening of the big fair by Ontario's Lieutenant-Governor, Hon. Louis O. Breithaupt. Representatives of press, radio and television were received in the building by Ontario Hydro Chairman James S. Duncan and Bert Merson, Chairman of the Toronto Electric Commissioners.

The two chairmen were accompanied by other officials of their respective organizations, who demonstrated and explained the many features of the various displays to the gathering.

Making a repeat appearance this year was the popular "Middletown" display, which consists of a model of a typical village of the early 1900's standing side by side with a representation of the same town today. It shows the tremendous contribution electricity has made to industry, business methods, agriculture, entertainment and home life.

The model of "yesterday" shows a horse-drawn streetcar, slowly making its rounds on the village streets, while that of the modern town has been enlivened with the addition of electrically-operated trolley buses and flashing "Neon" signs. New murals and improved lighting enabled visitors to study particular points of interest on the models.

Great Projects Featured

On display for the first time was a model of Canada's largest "steam plant" — Hydro's Richard L. Hearn

ON SHOW



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HON. LOUIS O. BREITHAUPT, Ontario's Lieutenant-Governor, officially opened the 79th C.N.E. this year.

MAYOR NATHAN PHILLIPS, Toronto (left), and Hydro Chairman James S. Duncan examine the model of Hydro's Richard L. Hearn thermal-electric station.

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Generating Station in Toronto — as it will look in 1960 when additions now under way have been completed to increase its capacity from 400,000 to 1,200,000 kilowatts. This, together with a transparent, plastic model of a typical nuclear-electric station, were part of an absorbing exhibit on fuel-electric generation, which will play an increasingly important role in the Commission's plans for meeting future power demands.

One of the best-known of Hydro's current projects is the St. Lawrence Power Project, which, because of its engineering features and relocation program, has aroused widespread interest on all sides. The story of the international power development, a joint undertaking of Ontario Hydro and the Power Authority of the State of New York, was graphically depicted through the use of a number of arresting exhibits. These included a scale model, illuminated map and color photographs of various key structures, as well as a huge oil painting, giving an artist's impression of the power and seaway projects together. Framing the model were two large colored illustrations showing the Great Lakes watershed in profile, explaining its power potential and tracing its flow downward to the ocean.

Of special interest to rural visitors to the "Ex" was the electrically-operated dairy farm, which has been modelled to include the most recent improvements in electrical machinery and equipment. Such devices as a hay drier, feeder and frost-proof water bowl, demonstrated some of the more than 400 uses for electricity on the farm. The model on display consisted of a hay-barn, milk-parlor, exercise-pen and associated farm buildings, and was complete with miniature model stock.

Working Model of Power Plant

Another popular exhibit again on view was the working model of the Stewartville Generating Station on the Madawaska River near Arnprior. Hydro's model-makers had reproduced the various features with such authenticity that all visitors who saw this eye-catching display were greatly impressed. A reproduction of one of the Stewartville station's three 14-foot-diameter penstocks (the steel pipes used to convey

(Continued on Page 15)





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W. R. CAESAR, Hydro Information Officer, captures the interest of a large group while describing the features of a nuclear-electric generating plant.

HYDRO INFORMATION OFFICER Reg. Robinson "stops" another crowd of C.N.E. sightseers with his description of the modern-day version of "Middetown," which illustrated the contribution of electricity in an average Ontario community.

CHARLES HOPKINS, Toronto Region, succe ed in convincing these youthful visitors t electricity is useful for more than turn on an electric fixture by showing them novel Hydro application on a modern fa

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IN THE TORONTO HYDRO section of the building, foot-weary C.N.E. visitors enjoy a welcome respite while they examine a colorful cross-section of a typical modern home.



water down the face of the dam to the turbines) has been fashioned from transparent plastic. Visitors saw water passing through the penstock to enter the scroll case and turn the turbine.

At a central location inside the building, a Frequency Standardization representative was on hand to explain progress in this important work to visitors. Maps of Ontario and Toronto provided information on the plans for 60-cycle frequency standardization completion dates in various areas. A selection of photographs provided a visual conception of the standardization operation.

Toronto Hydro again displayed a selection of the latest electrical home appliances including washing machines, driers, stoves and refrigerators. An innovation was a colorful cross-section of a typical modern home showing the use of various appliances. A lounge and comfortable chairs were available for visitors who wished to relax while viewing the display.

In the Ontario Government Building, the Electric Service League of Ontario erected an absorbing exhibit, which dramatically accentuated the importance of adequate wiring in the home. With the aid of a three-dimensional model of a house, demonstrations showed what can happen when circuits become overloaded, and how the situation may be corrected.

On Tour

Many of Ontario Hydro's C.N.E. exhibits had already made public appearances elsewhere this year and "took to the road" again after the closing of the "Ex" on September 7.

During the early part of 1957, Ontario Hydro sponsored displays at the annual meeting of the Association of Professional Engineers of Ontario in Toronto; the annual O.M.E.A.-A.M.E.U. Convention in Toronto; North Bay Rotary Fair; Industrial Tool and Production Convention, Toronto; Brockville Trade Fair, Lakehead Exhibition (Port Arthur-Fort William), and the Central Canada Exhibition, Ottawa.

Close on the heels of the close of the C.N.E., the exhibits began to move out to other parts of Ontario with displays being set up during September at: Western Fair, London; Welland County Fair; Galt Fall Fair; Kingston Agricultural Fair; Barrie Exhibition, and the 6th Commonwealth Mining and Metallurgical Conference, Toronto.

Arrangements also have been completed for exhibits during October and November at: The International Ploughing Match, Canada's Power Show and the Royal Winter Fair.

These and many other displays are enabling visitors to form interesting impressions of electricity in action and of Hydro's activities in providing better living for Ontario's people. ■

"SOURCE OF PRIDE"

Brantford P.U.C. inaugurates new headquarters building

NATURE proved a valuable ally of the Brantford Public Utilities Commission on July 25 this year, providing perfect weather for the official opening of the utility's handsome new Head Office.

The striking civic structure, with its clean limestone exterior, served as an ideal backdrop for the inauguration ceremony. Hundreds of citizens witnessed the event from improvised seating in a roped-off section of the street facing the building, while special guests were seated on the natural platform at the flower-bedecked entrance of the new building.

The last bright rays of a warm summer sun caught reflections from the polished instruments of the Canadian Legion band. Then in the gathering darkness the interior lights were turned up while the traditional ribbon-cutting took place, bringing the event to a dramatic climax.

The ribbon-cutting ceremony was performed by W. Ross Strike, Q.C., Hydro's First Vice-Chairman, assisted by K. C. Berney, Chairman of the Brantford Commission, and Mayor Max Sherman. Platform guests included past and present members of the Brantford Commission, Ontario and Canadian Government members, civic officials, as well as representatives of the O.M.E.A., A.M.E.U., and Ontario Hydro, who were introduced by Commissioner L. W. Turvey.

In a brief address prior to declaring the building officially open, Mr. Strike said that the new home of Brantford's electric, water and transportation services was among the finest municipal buildings in Canada, and, on behalf of Ontario Hydro, he commended the commissioners and staff for the devotion and teamwork which had made the achievement possible. Recalling that electricity had first been used in Brantford in 1885 when the electrical industry was in its very infancy, the speaker outlined the succession of interesting developments leading up to the advent of Hydro service in the community in 1914.

"Big Business"

Speaking earlier in the day, Mr. Strike observed that the generation and distribution of electric power had become "big business" all over the world. He cited Great Britain, the United States and South America as areas where the growth in demand had about paralleled the rate of increase in Ontario. Here, he said, load growth in the last 10 years had exceeded that of the entire preceding half century.

Declaring that this situation was likely to continue, Mr. Strike cautioned against underestimating the requirements of the future. At the same time he acknowledged that he had felt misgivings 10 years ago regarding the ability of the municipalities to meet upsurging demands, and praised them for having "measured up" to the heavy electrical requirements.

Chairman Berney, Master of Ceremonies at the official opening, attributed the steady growth of the Brantford Commission to sound financial planning. This had made it possible to erect the new, $450,000 building without adding to the debenture debt of the municipality. He said that the three departments of the local utility now had total assets in excess of $10,000,000 and an annual revenue of approximately $3,000,000.

A civic welcome was extended by Mayor Max Sherman, an ex-officio Commissioner, who said the building was symbolic of Brantford's rapid



INDIANA LIMESTONE and marble are tastefully combined in the exterior construction of the three-storey Head Office of Brantford P.U.C. Some 350 people attended opening.

development. A. W. Manby, Ontario Hydro's General Manager, dealt with the continuing discovery of new applications for electricity, and described the vast expansion program being undertaken by the Commission to assure an abundant power supply in the future. Congratulations were also extended by George T. Gordon, M.P.P., Brantford; Gordon H. Fuller, Windsor, President, O.M.E.A., and J. A. Williamson, Niagara Falls, Vice-President, A.M.E.U. The building was dedicated by Rev. Cyril Squires, President, Brantford and District Ministerial Association, and at the conclusion of the ceremonies guests were taken on a tour of the premises.

Guests Entertained

Earlier in the afternoon a group of almost 100 special guests were invited to inspect the new utility headquarters. Following their visit, they were guests of the Brantford Commission at a reception and dinner. On this occasion Chairman Berney expressed his regret at the absence of General Manager Norman Grandfield, and revealed that the utility manager had been ordered to the hospital on short notice. While his condition was not considered serious, the chairman reported that it would necessitate Mr. Grandfield's absence from work for some time.

Vice-Chairman Walter S. Pettit introduced the head-table guests, including: Hon. Ray Connell, Second Vice-Chairman, as well as Commissioners D. P. Cliff and

(Continued on Page 18)



COMMISSIONER L. W. TURVEY (at the microphone), introduces the platform guests. Later W. Ross Strike, Hydro's First Vice-Chairman (seated) opened the new building.

Lt.-Col. A. A. Kennedy, Ontario Hydro, who were later called on to address the gathering. Dinner speakers also included Jack Wratten, M.P., Brantford; Hon. H. C. Nixon, M.P.P., Brant; Commissioners Norman Boyd and J. H. Gillies, of Brantford, and Mayor Sherman. Mr. Strike was principal speaker.

Referring to the new building, Mr. Berney said that the construction material should last many lifetimes, and that it contained adequate facilities to take care of the ever-increasing demands of local customers. The record of Brantford's electrical department, since it was united with the water and transportation services when the utility was formed in 1935, indicated how rapidly these demands had increased. In the first year of operation after the reorganization, the peak load was 10,119 kilowatts. By 1956 this had increased to 38,033 kilowatts. In the same period, from 1935 to 1956, the number of electrical customers served by the utility grew from 8,886 to 16,589, an increase of almost 90 per cent. The first cost contract with Ontario Hydro came into effect in 1914. In that year the peak demand was 754 kilowatts and only 1,495 customers were served.

Contemporary Design

While the emphasis was placed on the utilitarian in planning the new building at 50 Wellington Street, it is truly a triumph of contemporary design. Stone and glass have been skilfully combined so that its architecture will not grow old, while its durable construction materials withstand the test of time.

Stone has been used extensively, for both exterior and interior finish. Three sides of the 106 x 66-foot building are constructed of buff Indiana limestone, while the entrance and the 34-foot-wide steps leading up to the doors are accentuated in white Danby marble. At the foundation level, green Vermont Verde Antique marble which also extends up the window columns, has been used to provide an effective contrast with the light surrounding surfaces.

Marble also enhances the interior of this outstanding building. The attractive pink tones of St. Vincent Clair marble from Portugal grace the walls, while Italy provided the Roman Travertine for the stair treads and risers. It is interesting to note that all these types of marble were imported in huge rough blocks, which were cut and polished in the plant of the Ontario Marble Company at Peterborough. The wide window expanses are double-glazed plate glass of a slightly green hue to reflect the sun.

The lobby is two storeys in height, and the ceiling area is taken up almost entirely by a large 60 x 15-foot, slightly recessed lighting louvre. The general office is located behind the service counter, which includes three cashier wickets, a service compartment, an information desk and telephone switchboard. Also on the ground floor are a soundproof billing room and the private offices of the chief accountant and service manager.

All the rooms on the second floor open on to a balcony overlooking the lobby. These include the executive offices and an impressive board-

REGISTERING satisfaction with the opening ceremonies, officials of Brantford P.U.C. (left to right): Assistant Manager W. A. Secord, Mayor Max Sherman, Commissioner L. W. Turvey, Chairman K. C. Berney, and Commissioners W. S. Pettit, Norman Boyd, J. H. Gilles, gather in the board room.



MR. STRIKE (left) presented a framed oil painting to Mr. Berney on behalf of Ontario Hydro. The painting, depicting the ultimate, 16-unit stage of the Sir Adam Beck-Niagara Generating Station No. 2 will be hung in the new building.





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THIS service counter is located on the first floor near the main entrance for the convenience of utility customers. A mezzanine balcony above the service counter gives access to executive offices and board room.

room, which is panelled from floor to ceiling in fine, decorative hardwood. A tastefully-appointed lounge for lady employees, complete with a kitchen unit is also accommodated on this floor.

Engineering, accounting, drafting and personnel offices share the third floor areas with a display room and conference room. The attractively-finished basement includes the Meter Department, a coin-counting room for the Transportation Department, two large vaults, and the furnace and air-conditioning plant. The latter is considered to be one of the most modern and efficient central plant systems available, and will provide ideal working conditions, year round, throughout the building.

An automatic elevator and permanent lawn-sprinkling system are other features of this remarkable utility centre, which in the words of Chairman Berney, "will serve the City of Brantford for many years to come, and will, I am sure, be a source of pride to all its citizens."

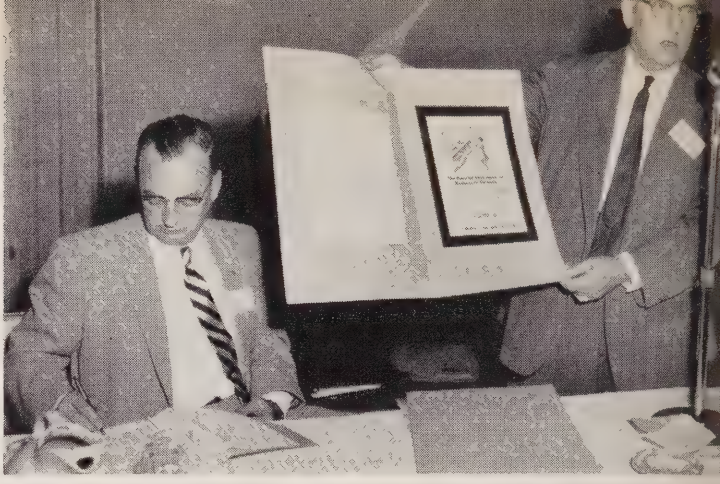
—by Don Wright.





JUDGING by the expressions of these utility employees, the spacious facilities of the general business office on the main floor meet with their unqualified approval. ▷

NIAGARA MEETING



O.M.E.A. District 5 delegates consider many important problems during summer gathering

With an agenda ranging from labor relations to the pooling of low tension transmission costs, the summer general meeting of O.M.E.A. District 5 at Niagara-on-the-Lake attracted an attendance of some 75 delegates representing Ontario Hydro and municipal electrical systems in the Niagara-Hamilton-Brantford area.

Capably guiding discussions, President W. B. Elliott, St. Catharines, directed members' attention to the labor relations program inaugurated by O.M.E.A. District 5 earlier this year. A printed report distributed to delegates indicated that the executive, since the annual meeting in January this year, had conducted a survey of member municipalities to ascertain their opinion on participating in such a program.

This program, in its initial stages, would involve the assembly of data from each participating utility relating to main monetary conditions of work, i.e., wage rates, job classifications, etc. The information obtained would be published in loose-leaf form, with an information sheet for each participating utility. Thus, each utility would have a record, at all times, of the main conditions of work obtaining in other municipalities. The availability of such information would provide guidance for management in bargaining negotiations.

Members were advised that the poll of member municipalities conducted by the executive had revealed 17 municipalities in favor of the program; two opposed, while 16 failed to reply.

Question of Cost

In commenting on the executive report, President Elliott said that the decision to proceed with the survey would be largely governed by the question of the cost of such a program. It was anticipated that it would entail a total expenditure of some $3,000 for the first year, to be apportioned among the participating utilities.

"It is expected that the cost will be less than $3,000 in subsequent years," he observed, "but we can give no accurate guarantee of this fact."

In answering queries from the floor pertaining to the cost to each utility, Mr. Elliott used St. Catharines as an example, saying that the cost to that utility had been estimated at "two-tenths of one per cent of the total annual payroll."

During the ensuing discussion, Mr. Elliott also answered a proposal that such a program be handled by the secretary-treasurer of each association.

"The executive feel that it could be done much cheaper by an industrial relations institute or an organization, which devotes itself exclusively to similar work," he stated. In this connection he pointed out that practically every industry in the Niagara district used the services provided by the Niagara Industrial Relations Institute.

The action of O.M.E.A. District 5 in broaching such a program was based on the premise that "a start must be made somewhere."

Co-operative Effort

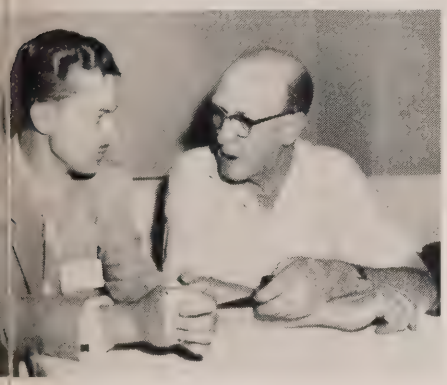
"But the greatest value will be realized only when other district associations decide to come in with us on this important project."

In view of the indecisive results of the poll conducted by the executive, members approved a motion authorizing the district officers to continue their efforts to secure an expression of opinion from utilities which had not replied to the questionnaire. In presenting the motion, F. R. Cavers suggested that the

◁ A FEATURED SPEAKER, Dr. V. S. Wilson, Etobicoke Township, describes Hydro's promotional campaign emphasizing the advantages of "electrical living", while Secretary Roy Pfaff (left) records the proceedings.

N. E. McCANN, a Consumer Service Supervisor of Hydro's West Central Region, was noted during a discussion with Port Dover's P.U.C. Superintendent Aaron McKnight.

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MEANWHILE John Dawson, Dunnville (left), was busy describing his utility's new floral clock as Sam Murchie, Brantford Township, examined a photograph of the timepiece, which won the admiring comments of Commissioner Walker S. Pettit, of Brantford.



directors call on these municipalities and do "a selling job."

Dr. V. S. Wilson, Etobicoke Township, representing the parent O.M.E.A., focused scrutiny on the subject of natural gas and the possibility of competition with electricity.

Impending Battle

Quoting from a recent magazine article dealing with the "impending battle between gas and electricity," Dr. Wilson said it was not a new problem. Back at the beginning of the present century, privately-owned gas companies had tried to provide interior and exterior lighting, and during the period 1910-1920 had progressed into the heating field. It was during the same period that cheap electric power became available, "and since then we have held a certain degree of priority."

But the situation was changing, and utilities must begin looking for means to protect the electrical load. Reporting briefly on the activities of the O.M.E.A. committee appointed to study the problem, Dr. Wilson said the committee had made definite progress during one or two meetings. Positive steps were being taken in the water heater problem with the assistance of Ontario Hydro's Research Division. The question of installing larger heating units on smaller tanks was being re-investigated by Hydro's research engineers, and a definite recommendation was anticipated in the near future.

Advertisements Prepared

Turning to the question of promotion, the speaker reported that Ontario Hydro had prepared several proposed advertisements, stressing the advantages of electricity. Additional advertisements, designed for municipal utility use, were planned and would be made available at a later date.

◁

DURING the banquet, O.M.E.A. district delegates received an enthusiastic and witty civic welcome from Mayor Wm. Greaves Jr.

Queried respecting the necessity of inaugurating such a program in the face of increasing electrical demands, Dr. Wilson firmly expressed the conviction that local utilities quite possibly would experience reduced domestic demands unless definite steps were taken to acquaint the public with the advantages of electricity.

"Are we going to allow the gas companies to come in and serve customers in the densely-populated areas and forget about the fringe areas?"

In concluding his talk, Dr. Wilson said the fact that local utilities were not facing an imminent crisis should not influence them to be complacent.

Pooling Costs

As the final item on the program, delegates briefly considered the effect of the proposed pooling of low tension system costs by Ontario Hydro.

A resolution presented by the executive recommended that the Commission be requested "to obtain an independent survey on the economics of supplying power at cost as compared with supplying power at a flat rate."

Considerable discussion followed, but delegates decided against requesting the Commission survey when advised by an Ontario Hydro representative that a complete analysis of low tension system costs had been prepared and would be presented at O.M.E.A. district annual meetings during the ensuing months.

The successful meeting concluded with dinner served at the Yacht Hotel and Motor Court. Introduced by Town Clerk Albert S. Reid, the head-table guests included: Thomas Barnes, Niagara Falls; Roy Pierson, Brantford Township; J. R. McCullough, Manager, Niagara Region, Ontario Hydro; Frank Kaupp, Mer-

(Continued on Page 28)

LONG SAULT VETERAN



CAPTAIN J. P. STEPHENSON
Master of the Rapids Line

Master of St. Lawrence River boats for 45 years recalls perilous trips through rapids section

BY GARY SMITH

On his quiet farm at Avonmore, a few miles west of Cornwall, an 85-year-old riverboat captain today muses on the vagaries of time and mankind while the St. Lawrence River he once knew like the back of his hand is remodelled in the image of the 20th century.

Still keen-eyed and vigorous after 25 years of retirement from the riverboat service, Captain J. P. Stephenson piloted passenger steamers down the turbulent Long Sault Rapids for nearly half a century. Today, however, he shakes his head at those reckless days when passengers lined the rails of the "Rapids King" as the steamer plunged headlong down the Long Sault.

"It was a foolhardy thing," he says. "I've often thought since that it was foolish and reckless to do what we did, even though we never had a serious accident all those years."

Captain Stephenson speaks with authority when he passes judgment on the Long Sault run. For in the course of his 45 years as both pilot and master of such ships as the "Rapids King," "Rapids Queen" and "Rapids Prince," he reckons that he made at least 1,300 trips through the picturesque cascade.

Now, moreover, the section of the river that once was the Long Sault Rapids is almost bone-dry. The flow of water has been diverted from the shoals and boulder-strewn riverbed so that construction may continue on the Long Sault dam, a major structure associated with the St. Lawrence Power Project.

Dangerous Passage

Recently, Captain Stephenson made a pilgrimage from his farm home to the river to stand on the rock river bed where the Rapids' ships once slid down the torrent. Pointing at familiar landmarks along the shore he paced the dangerous passage through the rocks.

Asked if the riverbed resembled his conception of it, he nodded. "Yes it does," he affirmed. "There are two big rocks; there's the channel between them; there's where we put the wheel hard over to turn broadside to the current."

The two rocks, each up to 20 feet in diameter, would have torn the bottom out of any ship that failed to navigate the channel between them. Once past this point, ships had to continue manoeuvring sharply in order to miss the shoals offshore from Sheek Island where the north channel veers south. Since these passenger steamers drew 6½ feet of water, the captain had little room for error.

Actually, the riverbed at this point, open to controversy for a century or more, consists of sections of flat, comparatively soft limestone. Here and there are smooth potholes, formed over the years by the swirling action of countless hard pebbles brought to the river by glaciers centuries ago.

The two great rocks mentioned by Captain Stephenson are actually thick slabs of limestone, possibly thrown up by glacial action. Here and there along the bed of the Long Sault are other similar slabs of limestone, often found supported on smooth, hard-rock boulders brought into the area from 50 miles north by early glacial movement.

It is thought that such limestone slabs probably moved downstream

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AERIAL view looking downstream shows the St. Lawrence diverted from the Long Sault Rapids (left) into the south channel (right) and through the first section of Long Sault dam. Construction of the second section is proceeding.

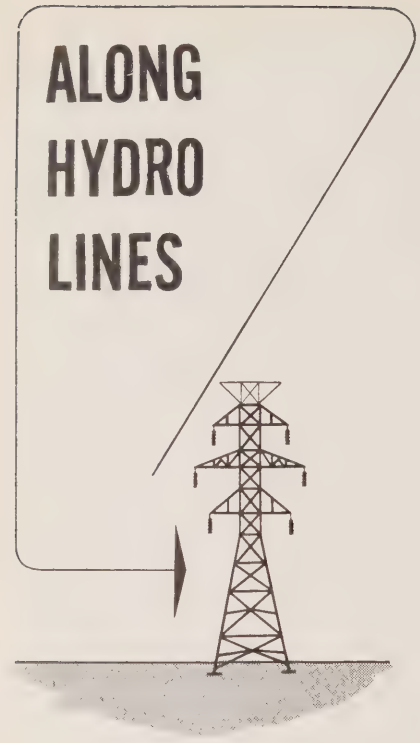


◁ FOR MANY years Captain Stephenson commanded the Rapids Prince, the last passenger ship to navigate the treacherous rapids. Service was discontinued in 1951.

DEWATERING of the Long Sault Rapids section revealed several unique rock formations. These "explorers" are examining a limestone slab perched on two boulders. A passing freighter is visible in the background.

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PLAN NEW NORTHERN UNIT

ONTARIO Hydro is to provide greater power supply protection for its interconnected Southern and Northeastern systems, and improved service security for some 18,800 customers affected by the 60-cycle standardization program in northeastern communities.

The Commission announced that this will be accomplished through the installation of a 45,000-kilowatt, 60-cycle generator at its strategic Abitibi Canyon Generating Station on the Abitibi River. A 25-cycle, 181,000-kilowatt plant, which was acquired by the Commission in 1933, the Abitibi station is located 250 miles north of Sudbury.

The new unit and the associated transformation and transmission facilities are scheduled to be completed early in 1959, at an estimated overall cost of approximately $3,000,000. Under average flow conditions, this installation will make available an additional 103 million kilowatthours of electric energy a year.

The space formerly occupied by a 25-cycle unit, which was transferred to one of the Commission's southern Ontario plants during the Second World War, will accommodate the new 60-cycle generator.

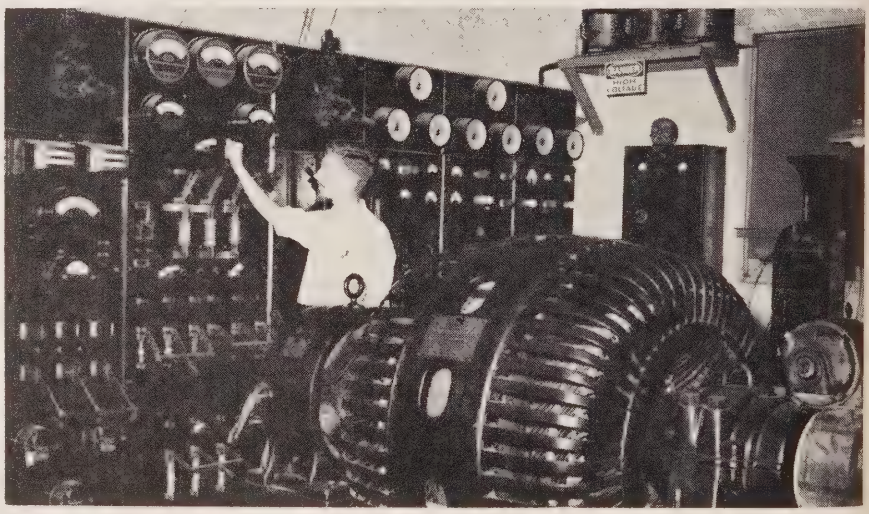
Communities which will benefit by the 60-cycle standardization program in northeastern Ontario, and which will enjoy greater service security, include Porcupine, Kirkland Lake, Matheson, Elk Lake-Matachewan and smaller communities surrounding the City of Sudbury. (Sudbury, itself, is now supplied with 60-cycle power.) ■

Prepares Paper For Concrete Journal

Regarded as an authority on structural design, Witold Zawilski, structural design engineer with the Commission's Research Division, prepared an important article, which was published in a recent issue of the Journal of the American Concrete Institute. The article is entitled "Elastic Design of Prestressed Sections in Flexure by Charts or Tables."

Former Parks Director, James Smart Dies

James Smart, Second Vice-Chairman of The Ontario St.-Lawrence Development Commission, died recently in Winchester Memorial Hospital. He had been employed by Ontario Hydro for the past four years on historical research in the Morrisburg area, and had also been engaged in planning parks for The Ontario-St. Lawrence Development Commission. Prior to his retirement a few years ago he had been Director of National Parks with the Canadian Government.



OLD MACHINE STILL RUNS

THIS 25 cycle synchronous machine (right) was used to generate power in the Waterloo, Ontario, area as early as 1908. Built by Canadian Westinghouse about 1905, it is still in good running condition. Part of the historical electrical equipment collection of Heinz Peper, Waterloo High School teacher, it was on display during the Waterloo centennial. Mr. Peper, wearing a beard for the centennial celebrations, stands in front of Waterloo's first electrical control panel.

NEGOTIATE FOR THERMAL STATION SITES

PLANS are proceeding for the acquisition of sites at Long Branch and on Burlington Bay for the construction of two thermal-electric stations, which will be among the largest in the world. The plants will be an integral part of the Southern Ontario System and will be well located in relation to the fast-growing industrial area on the shores of Lake Ontario, centering on Toronto and Hamilton: an area which is expanding more rapidly perhaps than any other in Canada today.

The first of these stations, representing a capital investment of $250 million, is expected to have an estimated capacity of 1,800,000 kilowatts, more than double that of the Commission's St. Lawrence Power Project.

While details of the second plant have not been completed, it will likely be comparable in size to the first one. In making the announcement recently, Chairman James S. Duncan said it was important that preliminary work on both stations be started before the end of the present year. The growth of power requirements in the adjoining areas and engineering investigations at the two sites would determine the timing of the two developments both of which, it is anticipated, will have been completed by 1968.

The turbo-generators to be installed at the first plant are expected to be of 300,000-kilowatt capacity, incorporating the increased efficiency associated with large units of modern design. Because of the time required for the manufacture and installation of such turbo-generators, tenders have already been called for two units.

Approximately 150 acres are required for a plant of this magnitude, together with dockage facilities capable of handling between four and five million tons of coal a year (the equivalent of 70,000 carloads). Cooling water facilities for such a plant will use several times the amount of water consumed in the entire Metropolitan Toronto area. For these reasons, it is essential that both plants be located on the lakefront. In addition, foundation conditions must be such that they will carry exceedingly heavy structural loads and, of course, a suitable right-of-way must be available for the construction of the necessary transmission lines.

Emphasizing the need for implementing these plans in the light of steadily-mounting demands for power, the Hydro Chairman pointed out that the Richard L. Hearn Station in Toronto will have been brought to its full capacity of 1,200,000 kilowatts by 1960 with the addition of four, 200,000-kilowatt units, which are now being installed. Commission studies indicate that additional capacity will be required by 1961. The Commission, in its submission to the Royal Commission on Canada's Economic Prospects, predicted an increase in power demand of as much as four or five times in the next 25 years. The St. Lawrence development, which is scheduled to deliver its first power next year and to be completed by 1960, represents the last major source of hydro-electric power available in southern Ontario.

Negotiations for the Long Branch site (which would be called the Long Branch Generating Station) are in progress for the property familiarly known as the Rifle Ranges. Located in Toronto Township, this property is owned by the Department of National Defence, which has decided to dispose of it. Under the terms of the original deed, a substantial area in the centre reverts to the City of Toronto.

The prospective site at Burlington (which would be called the Hamilton Generating Station) is owned by the Hamilton Harbour Commission, and consists of water lots in Burlington Bay, which will be reclaimed by suction dredging, the necessary dockage facilities being provided by a retaining wall. The filled area will require some time to settle before a plant can be built on it.

Because of the heavy concentration of industry in this thickly-populated and rapidly-expanding area, and because a good portion of No. 2 Highway closely parallels Lake Ontario, the selection of sites between Toronto and Hamilton has been difficult. All potential locations have been examined, and the Long Branch and Burlington properties have been selected as sites which meet all necessary conditions.

NORTHERN THERMAL PLANT

Mr. Duncan's announcement relating to the new thermal-electric sites in southern Ontario preceded, by a few days, a further disclosure that Ontario Hydro would begin immediate construction of a new thermal-electric generating station in the Fort William-Port Arthur area.

Scheduled for service in 1961, the plant, which will be built at an initial cost of $26 million, will have a first-stage capacity of 100,000 kilowatts, with provision for enlargement to 1,000,000 kw. as required.

The new plant (which will be named the Lakehead Generating Station) will be located in Fort William on Island No. 2, fronting on Lake Superior beside the Mission River, where excellent water and coal-storage facilities are available. Mr. Duncan commented particularly on the co-operation of the Hudson's Bay Company in releasing mineral rights held on this property so that it could be used for a thermal-electric plant.

The new plant will supply power to the northwestern network, and will be so located as to provide maximum protection and services to customers in the area where power demands have increased almost 250 per cent since 1945. The Northwestern Division, an area of 98,000 square miles, runs from Marathon in the east to the Manitoba border in the west. ■

NUCLEAR ENERGY AND ONTARIO HYDRO

The following explanation of the Commission's decision to proceed with the construction of three additional thermal-electric stations was recently released by Ontario Hydro Chairman James S. Duncan:

The question continues to arise as to why, with uranium available in large quantities in Ontario, Ontario Hydro is making plans to build additional thermal - electric plants fired by imported coal.

The explanation is a simple one. By 1961-62 the demand for power in Ontario will be greater than we can supply with our present resources, and nuclear plant development has not yet reached the stage in Canada, or in any other country, where this source of power would be in in any way competitive in cost with coal. At the present time, there is no full-scale, single-purpose nuclear power plant in operation anywhere in the world.

The first approach to such a plant was Calder Hall in England, which commenced operations last October. But this is largely an experimental plant, and is a dual-purpose plutonium and power producer, operating on a basis of cost, which would be quite out of the question for Ontario Hydro. Further, its capacity is such that it would require approximately 24 Calder Halls to equal the capacity of one of the projected Lakeshore coal-fired plants.

The Calder Hall type of plant is being re-designed in England for full-scale production, and the first of these plants is expected to be commissioned in 1960. It will be followed by a series of plants which, by 1965, will produce an estimated six million kilowatts of power per annum.

It is perhaps only natural that those who have not had an opportunity of following these intricate developments very closely should conclude that if this program is desirable for England, it should be equally desirable for the United States or for Canada.

The facts are, however, that the cost and growing scarcity of coal on the one side, the hazards surrounding the importation of oil, and the much lower labor rates in England result in conditions, which favor nuclear power in that country on a basis which would be entirely uneconomical in Canada or the United States.

It is important to take into account the cost figures prepared by one of the world's most renowned nuclear energy experts. Based upon figures compiled by Sir Christopher Hinton (Director of the Industrial Group, United Kingdom Atomic Energy Authority, and Chairman of Britain's new Central Electricity Authority, which will be formally constituted on January 1, 1958) regarding costs in England, we estimate that if it were possible to build a British type gas-cooled, graphite-moderated reactor plant in Canada in 1961, the energy derived from it would be at least twice the cost of that obtainable from a base load coal-fired plant. It is believed, too, that the improved versions of such plants, according to Sir Christopher's figures, would not appear to be economically competitive in Canada before 1977.

U.S. View

Mr. Kenneth Davis, one of the great nuclear authorities in the U.S.A., has this to say about it:

"If one accepts all the United Kingdom figures at face value, and only makes a change in the financing costs to bring them into line with U.S. industrial practice, we find that, according to Sir Christopher Hinton's projections, power from extremely large gas - cooled reactors will cost more than power from conventional U.S. power plants in 1980, and will only drop below this cost in 1990. This comparison ignores the fact that these gas-cooled reactors will probably cost 50 per cent to 60 per cent more if actually built in the United States. The blunt fact of the matter is that we have got to develop reactors, which are more economic than the gas-cooled reactor or we are not going to have economic nuclear power in the United States."

According to Admiral Rickover, the cost of power from the United States nuclear plant, which will be the first to come into operation, probably late this year, is expected to be about ten times the estimated cost of power from the projected coal-fired plants in the Toronto-Hamilton area.

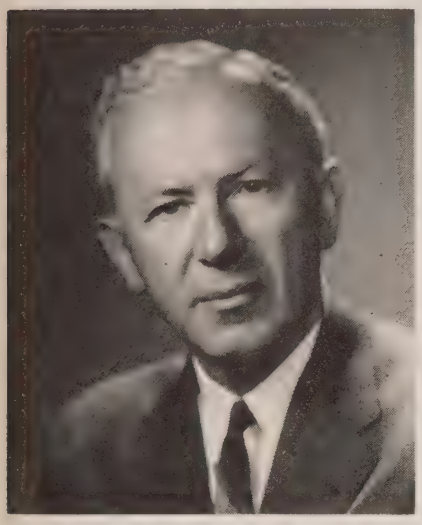
The anticipated solution to this problem is the one which Ontario Hydro and its colleagues at Chalk River are pursuing with the utmost activity and dedication, namely to develop a reactor which is more economic. The heavy water type of plant, which is the basis of Canada's nuclear program, appears to offer the best prospect, and there is sound reason to hope that a plant of this type may become practicable and economical for base load application before 1970.

These are the facts of the situation. Ontario Hydro and its splendid group of experienced and able planning engineers are just as aware as anyone in Canada of the desirability of using Ontario uranium in preference to United States coal, but the Commission does not believe that such an objective, even if it were possible of attainment by 1961, which it is not, would justify imposing the financial burden on its customers which would inevitably result from building large-scale nuclear power installations at their present stage of development.

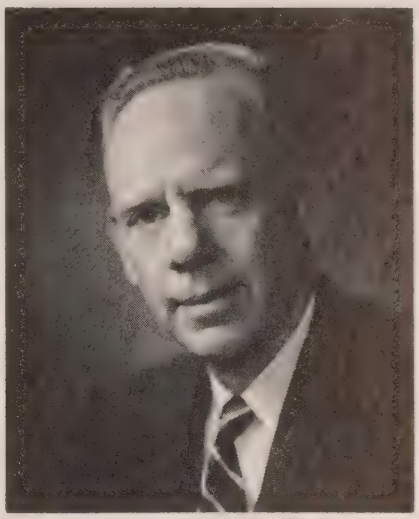
Ontario Hydro is merely being realistic and planning to provide

(Continued on Page 27)

ANNOUNCE NEW DIRECTOR APPOINTMENTS



GORDON B. TEBO



HUGH C. ROSS

APPOINTMENT of new Directors for the Commission's Organization Services and Research Divisions was announced recently.

Gordon B. Tebo has been named Director of Organization Services and Hugh C. Ross succeeds him as Director of Research. Both are long-service employees of Ontario Hydro, and have served in a number of responsible posts since joining the staff 28 years ago.

Mr. Tebo, who was born in Manitoba, received his early education in Ontario at Lefroy and Barrie, and graduated from the University of Toronto with a B.A.Sc., in electrical engineering in 1929. Joining Ontario Hydro in the same year, he spent two years in the Operations field office at Hamilton, and then transferred to the Laboratory Testing Inspection Department (the forerunner of the present Research Division). Before his appointment as Director of Research in 1953, Mr. Tebo held a number of key positions in the Research Division, including that of Assistant Director. For the past year, under a special arrangement, he has served as Director of Employee Relations. In assuming his new position as Director of the Organization Services Division, Mr. Tebo succeeds G. F. Davis, who will pursue professional practice outside the Commission.

Mr. Tebo is a member of the Association of Professional Engineers of Ontario, the American Institute of Electrical Engineers, the Engineering Institute of Canada and the Engineers' Club of Toronto.

Mr. Ross, a native of Toronto, was educated in local schools, and graduated from the University of Toronto with a Bachelor of Applied Science degree in civil engineering in 1929. Joining the Commission upon graduation, he received early field experience during the construction of the Alexander Generating Station on the Nipigon River. He subsequently served as Assistant Testing Engineer; Engineer-in-Charge, Structural Research Department, and as Assistant Director of the Research Division. During Mr. Tebo's absence from the division on employee relations work, he was acting director.

Mr. Ross is a member of a number of professional and technical organizations, including the Association of Professional Engineers of Ontario, the Engineering Institute of Canada, the American Concrete Institute and the American Society for Testing Materials. ■

NUCLEAR ENERGY

(Continued from Page 26)

the people of Ontario with all the power they require at the lowest cost attainable.

Meanwhile, the Commission is not only watching nuclear developments with the closest interest in Canada, in England, the United States, France and Germany, but is co-operating both financially and through its engineers with Atomic Energy of Canada Limited at Chalk River, with a view to utilizing this new source of power in its system just as soon as developments bring it within competitive range of conventional fuel-fired plants. ■



ONTARIO HYDRO'S famed floral clock at Queenston near Niagara Falls was given an added touch of beauty when Miss Canada, 1957, visited the Niagara district recently. Accompanied by a party of young ladies, the "Queen" — 20-year-old Jean Fitzpatrick, of Windsor — posed in front of the unique timepiece while enroute to Niagara Falls, Ont., where she was entertained under the auspices of the Greater Niagara Chamber of Commerce.

E. Morley Wood

WELL-KNOWN in the system planning field, E. Morley Wood, an Ontario Hydro engineer for 32 years, died recently in Runnymede Hospital, Toronto.

Mr. Wood, who was System Planning Engineer prior to his appointment as consultant on system planning and electro-technical problems in 1949, retired in 1952. Born near Cultus, he was educated at Cultus Public School, Port Huron High School, St. Thomas Model School, and graduated from the University of Toronto in electrical engineering in 1906. He joined the student apprentice course of the General Electric Company at Pittsfield, Mass., and then took post-graduate work at the University of Toronto. After graduating with honors in 1908, he returned to the General Electric Company. Later he became associated with Ontario Hydro as an electrical inspector, and in 1910 joined the Canadian General Electric Company staff as construction and service engineer. In 1917 he went to Trail, B.C., to work for Consolidated Mining and Smelting Company, rejoining the Commission's staff in 1919 as a relay engineer, and dealing with special problems. He assumed charge of Hydro's System Planning Section in 1939, and in 1947 he was named to head the newly-created System Planning Department.



E. M. WOOD

Mr. Wood was a Fellow of the American Institute of Electrical Engineers. Interested in church work, he was a charter member of Runnymede United Church, and was prominently identified with several church boards. He is survived by two sisters, his wife having predeceased him about one year ago. ■

W. C. Cunningham Named Assistant Director

Appointment of W. C. Cunningham as Hydro's Assistant Director of Supply was announced recently. Until his present appointment, Mr. Cunningham was Administrative Assistant to the Director, in which position he has played a large part in Hydro's procurement and supply program.

Born and educated in Newmarket, Ontario, Mr. Cunningham joined Ontario Hydro's Purchasing Department in May, 1937. Following wide experience in this department, he was appointed Assistant Purchasing Agent in 1948 and Purchasing Agent in 1951. In May, 1955, his services were loaned to the Commission's Organization Services Division where he served for one year as Organization Planning Officer. In May, 1956, he returned to the Supply Division to become Administrative Assistant to the Director.

Mr. Cunningham is a member of the Canadian Association of Purchasing Agents, while he is also identified with the Public Utility Buyers Group of the National Association in the United States. In addition, he is a member of the Purchasing Committee of the Canadian Electrical Association. ■



W. C. CUNNINGHAM

FOR SALE

Constant Current Transformer, Adams & Bagnall Electric Co., Cleveland, Ohio, U.S.A., rating — 25 cycle, 15 kva, 2300 volts, 6.6 amps.; Cat. No. E269; Serial No. 31336; Winding Spec. E263A; Good Condition. **Replies are to be addressed to: Simcoe Public Utilities Commission, 45 Sydenham Street, Simcoe, Ontario — ATTENTION; Mr. W. D. Stalker, P.Eng., Manager and Secretary.**

Hydro Signs New Supply Agreement

Ontario Hydro is to supply Great Lakes Power Corporation with 120,000-volt power up to a maximum of 35,000 kilowatts, delivery being tentatively scheduled to commence April 1, 1959.

The agreement completed with the Corporation is for a term of five years with the option of renewal for two additional years. The power will be delivered to the Corporation at the Commission's George W. Rayner Generating Station, about 20 miles northeast of Thessalon. In order to accept delivery, Great Lakes Corporation will construct 48 miles of transmission line from the Rayner plant to Sault Ste. Marie.

NIAGARA MEETING

(Continued from Page 21)

ritton; Ontario Hydro Commissioners D. P. Cliff and Lt.-Col. Kennedy; O.M.E.A. President Gordon H. Fuller, Reeve Walter E. Theobald, Warden of Lincoln County; H. J. Schneider, Port Dover; Dr. V. S. Wilson and Ray Pfaff, St. Catharines. Also among the honored guests, Lincoln S. Quinn, Niagara-on-the Lake, introduced Mayor William J. Greaves, who extended an official welcome to the guests. Brief addresses were given by Mr. Cliff and Lt.-Col. Kennedy, who brought greetings from Ontario Hydro, while President Fuller, spoke on behalf of the O.M.E.A. — *by the Editor.*

Acting Municipal Service Engineer Appointed

Effective September 1, H. J. Edwards has been appointed Acting Municipal Service Engineer on the staff of Ontario Hydro's Consumer Service Division. In announcing this appointment, I. K. Sitzer, Director, said that Mr. Edwards was replacing D. J. Gordon, who had been granted an 11-month leave of absence by the Commission to attend a course at the National Defence College, Kingston.

LONG SAULT VETERAN

(Continued from Page 23)

from their original locations with the boulders acting as ballbearings, while the current provided the motive force.

Did Large Ship Founder?

A testimonial to the turbulence of the treacherous rapids is the assortment of iron scraps found scattered along the dry riverbed. These include two pieces of steam boiler grating, several small anchors and what may have been a steam winch. It appears likely that a fairly large ship broke up during a rapids run, and numerous deep pools which have yet to be pumped out may eventually give added support to this theory.

Captain Stephenson was particularly surprised at the dangerous shoal at the head of the cataract. "None of us ever thought there was a shoal like that right below the head of the rapids."

The Long Sault area was the most treacherous of the whole International Rapids Section of the St. Lawrence. Here, the river drops some 45 feet over a nine-mile stretch before levelling out opposite Cornwall.

The dry riverbed, exposed to the air after centuries, will not remain dry for long however. When flooding for the St. Lawrence Power Project occurs in 1958, water will again flow over the rocks and shoals of the Long Sault. But because the river at this point will be approximately 35 feet deeper than formerly, the Long Sault Rapids will have ceased to be — in all but memory. Only for Captain Stephenson will there remain a special meaning to this portion of the river.

"I still say it was a foolish thing, going down the rapids like that," he says. But in his eyes there is a glint that, perhaps, belies his words.■



A.T. SMITH HEADS GRAND VALLEY METERMEN FOR 1957

Port Dover's Summer Gardens formed an appropriate setting for the annual meeting of the Grand Valley Metermen's Association. With a record attendance of some 120 delegates, the gathering was featured by two key addresses on "Why Maintenance" by Allan Lawson, Sarnia, and "Public Relations" by T. E. Dietrich, Ontario Hydro. A general review of kilowatt-hour meter designs by K. R. Dunphy , Canadian General Electric Company, Quebec works, was another highlight of the one-day assembly, while a film presentation depicting Canada's famed Kitimat development was another important item on the agenda. Concluding the interesting program, the utility representatives elected a new executive for the ensuing year. Shown in the accompanying photograph, the 1957 officers include: Front row (left to right)—W. D. Stalker, Simcoe P.U.C., Vice-President; A. T. Smith, Hamilton Hydro-Electric System, President; John Passmore, Delhi P.U.C., Past President; Back row—Otto Reiber, Waterloo P.U.C., Hugh Robinson, Brantford Township H.E.C.; Joseph Belbeck, Port Dover P.U.C., Directors. Other directors elected but not present when the photograph was taken were: Gordon Steiss, Kitchener P.U.C.; Reginald Phillips, Brantford P.U.C.; Robert Reid, Guelph Light, Heat and Power Commission; Paul Murdock, Ontario Hydro, Simcoe R.O.A., and George Boucher, Paris P.U.C. W. G. Smith, Hamilton, was appointed Secretary-Treasurer.

Emphasizing the scope of the St. Lawrence Power Project rather than actual construction progress, this view of the powerhouse area also shows the Cornwall diversion canal and closure structure (extreme right on the front cover) and the adjoining Ontario Hydro-Power Authority of the State of New York powerhouse. Portraying the intricate network of construction access roads and other temporary construction facilities, this unique aerial photograph also depicts the completed first section of the Long Sault dam in the south channel of the river. On page 2 of this issue ("On Schedule"), we direct attention to the phenomenal progress recorded in the past few months in the building of this important international hydro-electric project.



ONTARIO HYDRO NEWS

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OCTOBER, 1957

ONTARIO HYDRO

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OCTOBER, 1957

VOLUME 44, NUMBER 10

MANY CANADIAN "FIRSTS"

THIS month we direct attention to two specific projects, which emphasize the ingenuity and skill of professional engineers associated with Ontario Hydro. While the successful completion of the Niagara Remedial Works program (see Page 2) represents a triumph of international co-operation, it also demonstrates the imaginative approach of Ontario Hydro engineers and their professional associates in the Corps of Engineers, United States Army, to a difficult and extremely hazardous undertaking. Changing the crestline of Niagara's Horseshoe Falls, and devising means of controlling the flow over this 162-foot precipice to augment power production in both Canada and the United States were tasks of almost herculean proportions. We are confident that generations to come will gratefully acknowledge the public-spirited enterprise and the scientific skill, which combined to preserve Niagara's scenic splendor, and to harness its teeming force for the comfort and well-being of the men and women of two nations.

This issue also makes reference to another significant project (see "Cool Cables," Page 10) now under way along Toronto's waterfront. The fact that Ontario Hydro engineering representatives have devised a revolutionary cooling system for the underground cable installation in this area constitutes another achievement, which reflects further credit on their distinguished profession, and promises to have a marked effect on underground transmission techniques.

The accomplishments of Hydro's engineering staff — so vividly portrayed in these two projects — calls to mind the outstanding contributions of Canadian pioneers in the electrical field. For instance, the world's first trolley-pole electrical railway began operation in Canada in 1883. Less than a decade later, young Thomas Ahearn, of Ottawa, demonstrated that it was possible to keep these cars warm with the aid of an electric heater. During the next year — in 1893 — he showed a party of visiting street railwaymen what is now regarded as the world's first electric stove. In the past half-century, Canadians have demonstrated even more pronounced ingenuity in the development of new techniques and methods associated with the electrical field. Many Ontario Hydro engineers have, indeed, earned distinction for the Commission and themselves by their courageous pioneering. Perhaps the first notable instance was the construction, around 1908, of Hydro's original transmission line between Niagara Falls and Dundas, Ont., which was designed for operation at 110,000 (now 115,000) volts. Thus the Commission, at that time, became one of the first utilities on this continent to transmit power at such a high voltage. Unfortunately space limitations preclude a full review of the successive achievements credited to Hydro's engineering staff. The two projects described in this issue, however, present reassuring evidence that these fine traditions are being perpetuated.

While the names of Faraday, Kelvin and Edison, as well as scientists of many other nations, stand as beacons in this area of technological progress, it is gratifying to realize that Canadians have made and are continuing to make contributions of imperishable significance to the electrical industry.

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COVER PHOTOS

OUR front cover this month, with its aerial color view of the twin cataracts of Niagara, salutes completion of the Niagara Remedial Works program as described on Page 2 of this issue.

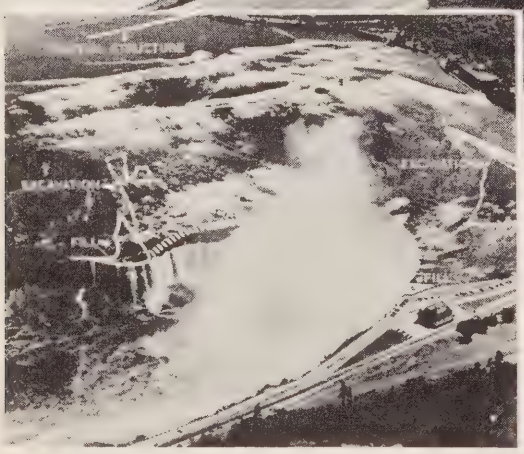
The peaceful scene on the back cover may recall pleasant memories of Autumn in rural Ontario for many readers.



REVERSIBLE LAKE

A SILVER ribbon of water has been created by Ontario Hydro engineers as part of an ingenious scheme to augment the output of its English River generating plants. Racing against time and battling muskeg almost every foot of the way, construction forces have succeeded in driving a new, 10,000-foot-long channel through the remote, difficult terrain of the northwestern Ontario forests to connect the Root River and Lake St. Joseph. The lake (which is partially visible in the lower right section of this photograph) was formerly separated from the river by a quarter-mile watershed, and drained northward into the Albany River and thence into James Bay. Using some 2½ tons of explosive, Hydro engineers, on September 18 this year, removed the earth barrier (as shown in the accompanying photograph), and thus diverted a water flow of approximately 2,800 cubic feet a second from Lake St. Joseph into the 75-foot-wide, man-made waterway and into the connected Root River. The "Root" has been chosen for the key role of carrying the additional flow through a newly-built control dam and thence into Lac Seul — the headpond of Hydro's Ear Falls generating plant on the English River. The additional water from Lake St. Joseph has an important bearing on the capacities of two new hydro-electric developments downstream from Ear Falls. It has permitted the installation of a fifth, 11,500-kilowatt unit at the Manitou Falls station, which will have a total capacity of 65,700 kw. when completed next year. The prospect of the extra flow has also influenced plans for the 67,500-kw. Caribou Falls plant, another English River development now under construction, scheduled for service in 1958. Installation of heavier capacity units will also be possible when the Commission develops its Maynard Falls site on the English River, while Winnipeg River generating stations in the Province of Manitoba are being favorably affected by the diversion.





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EXCAVATION and filling operations along the Canadian (right) and United States (left) flanks of Niagara's Horseshoe Falls as indicated in the photograph, left, were major phases of the Niagara Remedial Works program. The larger of the two Niagara cataracts (as shown above after the "face-lifting") now has an unbroken curtain of water along the entire crest, while the two filled areas on both flanks provide excellent vantage points for viewing the spectacle.

◁

NIAGARA'S NEW

Historic International Ceremony Marks Completion of Remedial Works Program

If Father Louis Hennepin had returned to Niagara Falls on September 28 this year he would have noted some dramatic changes in that "vast and prodigious cadence of water."

That was his description after he first came upon the roaring cataracts in 1678. But he undoubtedly would have been astounded to see that the Horseshoe Falls had receded several hundred feet since his previous visit. Quite likely he would have been equally astounded to find that the engineering genius of men of two friendly countries had combined to halt this alarming recession. Another interesting discovery would have been the fact that these "giants" of technology had another purpose in view when they tackled the job — utilizing Niagara water more effectively for the generation of electricity.

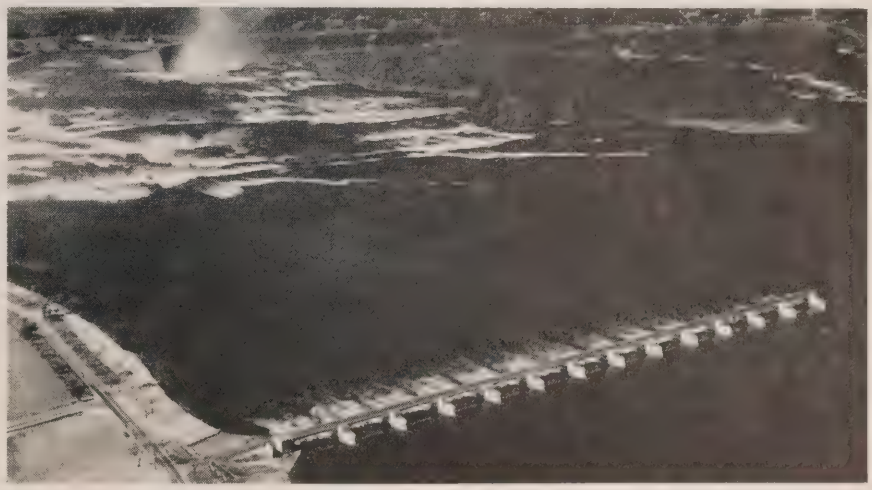
Thus Father Hennepin would have been among the throng of attentive spectators at the international dedication ceremonies marking completion of the unique program.

Implemented as it was under the direction of the International Joint Commission, it was fitting that General A.G.L. McNaughton, Chairman of the Canadian Section of that important body, should preside at the formal inauguration of the remedial works.

Held in a tent, which afforded a commanding view of the new remedial control structure on the Canadian side of the river, the ceremonies were witnessed by several distinguished Canadian and United States representatives. Among the platform guests were Ontario's Lieutenant-Governor, Hon. Louis O. Breithaupt; Hon. Alvin Hamilton, Canadian Minister of Northern Affairs and National Resources, and Hon. Wilber M. Brucker, Secretary of the United States Army.

Stressing the close and effective co-operation between both nations during the four-year program, General McNaughton brought the ceremony to a climax when he asked Mr. Hamilton and Mr. Brucker to press buttons in a decorated panel, which centred the platform. As the entire audience turned to face the control structure, located about one mile above the Horseshoe Falls, the first two gates of the concrete installation opened, allowing the Niagara water to surge through the openings.

(Continued on Page 4)

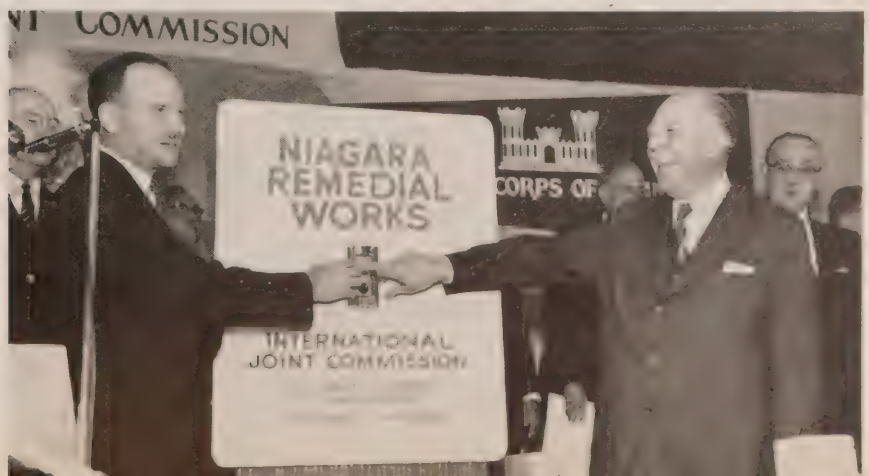


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GRASS ISLAND POOL Control structure, built by Ontario Hydro, is located on the Canadian side of the Niagara River about one mile above the Horseshoe Falls. Some 1,550 feet long, it contains 13 sluices or openings (each equipped with a control gate), which control the water flow over the Falls and the amount of water available for power generation in both Canada and the United States.

MANIFESTING international amity, Hon. Alvin Hamilton, Canada's Minister of Northern Affairs and National Resources (left), and Hon. Wilber M. Brucker, Secretary of the United States Army, participate in the joint inauguration of the remedial works control structure.

▽



MAGIC

In his introductory remarks, General McNaughton recalled that "the study of the preservation of the falls has been an intricate task for many men for many years." Continuing he pointed out that the first "really authoritative report," which seemed to point to practicable methods, was prepared by the Special International Niagara Board in 1929.

Lauding the role of Ontario Hydro and the Corps of Engineers, United States Army, in the project, General McNaughton alluded to the successful solution, which had been devised for the seemingly divergent objectives of the remedial program. "In fact it has been the satisfaction of the demand . . . . for power, which has opened the way to the attainment of the cultural and aesthetic objectives, which we are to dedicate today."

Introduced by Hon. Douglas McKay, Chairman of the United States Section, International Joint Commission, Hon. Wilber M. Brucker traced the history of power development along the Niagara River.

Power Complex

"From small beginnings has grown a power complex of seven hydroelectric plants — two on the American side and five on the Canadian — with a total installed capacity of over two million kilowatts."

Turning to the Niagara Remedial Works Program, Mr. Brucker said this construction project involved "extremely complex and hazardous operations, and the overcoming of monumental obstacles by sheer engineering genius."

The successful completion of this extremely difficult and important task reflected enormous credit upon the International Joint Commission, Ontario Hydro and the Corps of Engineers of the United States Army, the U.S. Cabinet member declared. Referring to the noteworthy fact that the project was completed for some $5 million less than the original estimate of $17.5 million, Mr. Brucker drew applause and laughter with his observation: "It is little wonder that we saved money with good Scots like McNaughton, McKay and Roger B. McWhorter on the International Joint Commission."

Mr. Brucker brought his address to a conclusion by declaring that "These Niagara Falls Remedial Works constitute a monument to the vision and faith of many distinguished citizens of both our nations, and to the vigorous neighborly spirit, which has contributed so mightily to the strength of Canada and the United States alike."

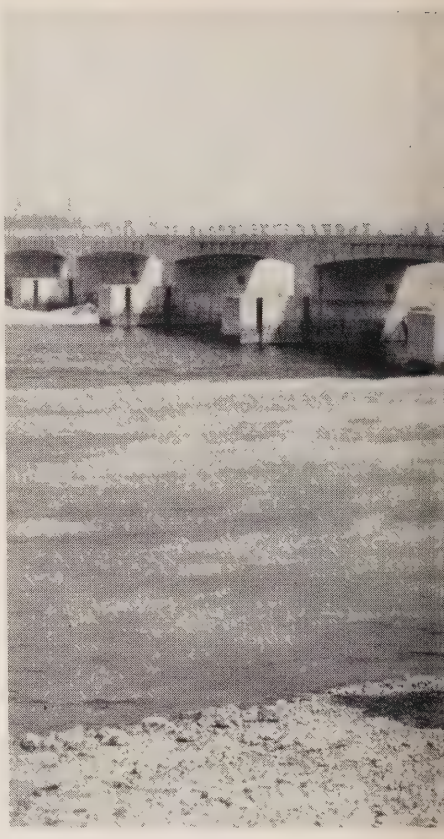
Speaking on behalf of Canada, Mr. Hamilton, a native of Saskatchewan, recalled his boyhood memories of Niagara, which he regarded as "one of the world's greatest wonders".

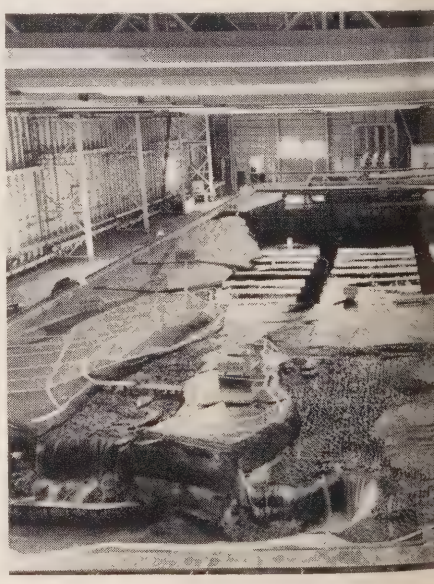
His early impressions of the Falls were invariably associated with the feats of daring performed by people in the Falls area — going over the cataracts in barrels or rubber balls or walking tight ropes strung across the gorge, Mr. Hamilton continued.

Falls "Suicide"

"These death-defying stunts, bordering on suicide, always left an impression on the public," Mr. Hamilton stated, "but in the midst of all this only a few people were concerned with the fact that the Falls themselves were committing suicide through erosion and recession." Lauding the signing of the Boundary Waters Treaty of 1909 and the Niagara Diversion Treaty of 1950, the speaker singled out for special credit the engineers and field construction forces, who had undertaken the difficult surveys, investigations and work that made possible the Remedial Works project.

Other participants in the inauguration ceremony were Rev. Herbert C. Linstead, Chairman of Greater Niagara Ministerial Association (Ont.), who gave the invocation, and Rt. Rev. Msgr. P. J. Tronolone, Pastor of St. Joseph's Roman Catholic Church, Niagara Falls, N.Y., who pronounced the benediction.





△ HYDRAULIC MODELS, such as this Ontario Hydro replica of the Niagara Falls area (located at Islington, Ont.), were used for testing proposed remedial procedures, and are credited with effecting a substantial saving for the program.



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WITH a section of the new Grass Island Pool Control structure providing an impressive backdrop, three key figures of the recent international ceremony (left to right): Hydro's Chairman, James S. Duncan, and Chief Engineer, Dr. Otto Holden, and General A. G. L. McNaughton, Chairman of the Canadian section, International Joint Commission, discussed the project.

AERIAL PHOTOGRAPH shows excavation in progress along the Canadian flank of the Horseshoe Falls at the height of the remedial project. This work was completed during November, 1955.

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The spirit of international amity manifested during this event was even more evident at the official luncheon in the nearby Refectory Restaurant following the inaugural ceremony. Master of Ceremonies was Mr. McKay.

Royal Greetings

Bringing greetings from Her Majesty, Queen Elizabeth, Ontario's Lieutenant - Governor commended the agencies, which had participated in the historic preservation project. Alluding also to the international character of the event, Mr. Breithaupt pointed out that he had been provided with an international escort of Canadian police and white-helmeted United States Army officers during his tour of the area.

Other speakers during the luncheon included Mayor E. M. Hawkins, Niagara Falls, Ontario, who extended civic greetings; Major General E. C. Itschner, Chief of the Corps of U.S. Engineers; Hon. Charles Daley, Ontario's Minister of Labor and Chairman of the Niagara Parks Commission, and J. Burch McMorran, Chief Engineer, Power Authority of the State of New York. Speaking on behalf of Ontario Hydro, Chairman James S. Duncan voiced the Commission's enthusiasm for the Remedial Works Program in which it had participated jointly with the U.S. Corps of Engineers.

"We believe that the beauties of nature should be preserved — and in this instance we not only believe it, we are paying for half of it," he remarked amid laughter. Voicing tribute to the U.S. Corps of Engineers, Mr. Duncan also expressed the Commission's appreciation of the opportunity of participating (as the Canadian agency) with the Corps in the program.

"We have worked with the Corps up here, and with the Power Authority of the State of New York

Continued on Page 6)

on the St. Lawrence River, and never had more pleasant associations."

At the conclusion of the luncheon, key members of the official party inspected the varied improvements carried out near the brink of the falls.

Effective Solution

The Remedial Works Program was undertaken to provide an effective solution to problems, which had been causing increasing and considerable concern in both the United States and Canada for many years — that of the recession of the Horseshoe Falls caused by erosion of the rock and the baring of the flanks of these Falls.

The full significance and seriousness of this steady deterioration are brought more sharply into focus when its cumulative effect is assessed over the years. It has been estimated that the Falls are about 25,000 years old. Originally, they were seven miles farther north, near Lewiston, N.Y. Continuing erosion of the rock that forms the escarpment, however, has caused the "migration" upstream. Records relating to the crestline show that since 1764, the Falls have receded more than 865 feet or at an average of more than four feet a year. This wearing away is explained by the fact that underneath the resistant layer of Niagara limestone, which forms the surface, are softer layers of shale and sandstone. This softer rock is weakened by the swirling waters at the foot of the Falls and, as the shale is worn away, the upper limestone layers are left unsupported, and eventually crumble and fall.

Because of the greater flow, the Horseshoe Falls are receding faster than the American Falls. The rate of recession was 4.2 feet per year from 1842 to 1905-06, and 3.2 feet per year from 1906 to 1927. From 1927 to 1950, the rate of recession was 2.2 feet yer year.

The Niagara River, which links Lake Erie and Lake Ontario and is 35 miles long, is nearly a mile wide at the Falls and carries a tremendous volume of water amounting to some 75,000,000 gallons a minute. The Falls are divided into two main areas, and lie between the cities of Niagara Falls, N.Y., and Niagara Falls, Ontario. These are the Horseshoe Falls and the American Falls, which are separated by a three-quarter-mile-long piece of land known as Goat Island and a small fall of water — the Bridal Veil Falls. The Horseshoe Falls, which carry 95 per cent of the water, have a drop of 162 feet and had a crestline of 2,500 feet before completion of the Remedial Works Program. The remaining five per cent of the total volume of water is carried by the American Falls, which have a crestline of 1,060 feet and a drop of 167 feet.

Diversion Treaty

Continuing studies clearly indicated the need for attacking the problem of erosion as quickly as possible. Therefore, the Niagara Diversion Treaty of 1950, between the United States and Canada, was negotiated with a full appreciation of both the scenic and power requirements. Under the Treaty, the International Joint Commission was given a trusteeship to preserve and enhance the beauty of the Falls and the river. The Treaty provided that no diversions of water for power purposes were to be made that would reduce the flow over Niagara Falls to less than 100,000 cubic feet a second

RECORDS of the crestline of Niagara Falls indicate that the Horseshoe Falls has receded some 865 feet since 1764. The remedial works are designed to make the erosion rate negligible.



during the daylight hours of the tourist season or 50,000 c.f.s. at any other time. The Governments of Canada and the United States, in October, 1950, requested the International Joint Commission to investigate and report on the nature, design, construction and cost of the necessary remedial works.

Actual construction of these works, as already pointed out, was undertaken by two agencies — by the Corps of Engineers, United States Army, and by Ontario Hydro, in their respective countries.

Hydraulic models, one built by Ontario Hydro at the A. W. Manby Service Centre, Islington, and the other by the Corps of Engineers, at Vicksburg, Miss., have played an all-important part in the program from the earliest stages of the investigations. The Vicksburg model includes the Niagara River area up to Lake Erie, making it possible to carry out tests to determine any effects in the upper reaches of the river, as well as at the Falls. The Hydro model, built on a larger scale extending up to the downstream tip of Grand Island, facilitated the measurement of river flow. These models, in the opinion of the International Niagara Falls Engineering Board, provided the only reliable method of obtaining the extensive and complex information required to assure that the maximum benefit would be derived from the combined efforts of the two agencies.

Preliminary construction operations were started in December, 1953, and two international ground-breaking ceremonies, marking the official start of the four-year conservation and remedial works program, were held on June 2, 1954.

An outstanding engineering feature of the program was the construction of the Grass Island Pool Control Structure, extending some 1,550 feet from the Canadian side of the river, about a mile above the Falls and some 250 feet downstream from the previously-constructed submerged weir. Each of the 13 sluices or openings included in this impressive and graceful-looking structure is equipped with a control gate. The purpose of this particular project is to control the water level in the Chippawa-Grass Island Pool area, which is the site of intake works for both United States and Canadian power plants. It is being operated under the supervision of the International Niagara Board of Control on behalf of the International Joint Commission.

INDICATING the improvements carried out for the preservation of Niagara Falls and the location of the control structure, this map provides a conception of the scope and effect of the project.



Interesting Techniques

Actual construction of the control structure, carried out by Ontario Hydro, involved several interesting engineering techniques. The job was completed in six stages by means of a series of temporary cofferdam made up of six-ton precast concrete blocks, steel cribs and interlocking steel sheet piling. Each section of the river enclosed by a cofferdam was pumped dry, and, as work neared completion on the permanent structure in the dewatered area, the next cofferdam stage was commenced. Thus, the structure progressed out into the river by means of a sort of "leap frog" operation, with the second stage cofferdam materials being used in the fourth stage, and so on until the project was completed. As the work progressed, a prestressed concrete bridge or roadway was built from pier to pier to provide access during construction and for permanent access upon completion.

Each of the 13 gates in the control structure is 100 feet wide, and weighs approximately 150 tons.

(Continued on Page 22)



SOME 300 delegates and other guests filled Midland Armouries for the annual convention banquet, which climaxed the first day's program.

Georgian Bay M. E. A. delegates discuss the "next generation" during interesting two-day annual meeting at Midland

"PAY-AS-YOU-GROW"

"PAY-AS-YOU-GROW" and the question of who constitutes the "next generation" provided the basis for a lively discussion at this year's annual meeting of the Georgian Bay Municipal Electric Association.

Held at Midland, the two-day convention, with a heavy agenda embracing a variety of topics, was featured by a record registration of 217 delegates.

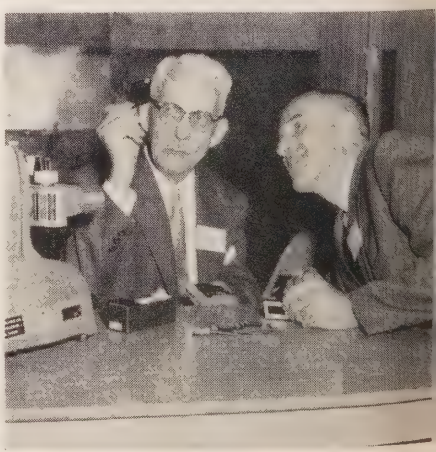
Considering the problem of capital expenditures and methods of payment, delegates heard a positive and interesting opinion on the subject expressed by W. M. Salter, General Manager and Secretary of Barrie Public Utilities Commission.

A staunch advocate of the "pay-as-you-grow" policy, Mr. Salter referred to the common belief that the "next generation" should help to pay for capital improvements. Consequently utilities and other municipal bodies frequently issued debentures for periods of as much as 20 years. At present rates of interest, a $100 capital expenditure resulted in a cost to utility customers or taxpayers of approximately $174, Mr. Salter estimated.

Asserting that most of the persons in the audience would be alive for another 20 years, this delegate said they, therefore, were as much a part of the next generation as present-day youth.

In presenting his argument

T. H. CHISHOLM (left) and J. H. Seymour, Chemical Research Department, Ontario Hydro, check the slides used to illustrate Mr. Chisholm's address on the preservation of wood poles.



favoring the principle of paying for capital improvements from current revenue, Mr. Salter cited the Barrie utility as an example of this policy. He recalled that the Barrie system had found it necessary to finance heavy commitments in two successive years. This had been successfully achieved by introducing a slight revision in customer rates — resulting in slight increases in domestic Hydro bills (1/5 cent only on the second rate), which had brought no protest from the customers concerned. As a consequence, two new substations were now paid for, and neither the present nor the next generation would be burdened with bond interest.

Mr. Salter caused laughter by concluding: "I think we should forget about this next generation bogey, and realize instead that we are it."

This discussion arose during an interesting and informative "question - and - answer" period, which was one of the highlights of a very successful convention. Other topics discussed during this period included: "Should Relatives be Employed?" (a unanimous "no" to this one); "What specific methods can be suggested for promoting the sale of flat rate water heaters?"; Standard regulations on meters and services; Is a 3-wire 100-amp service generally desirable?; Overages and shortages in cash; What is the proper procedure for writing off uncollectable accounts?

A supplementary question arose when a delegate, congratulating T. H. Chisholm, Ontario Hydro, on an excellent talk on "Preservation of Poles" asked how other useful technical information of this type could be obtained from the Commission's Research Division.

J. C. Ferguson, Manager of the Georgian Bay Region, in replying to this query, said complete technical information was supplied to regional engineers, who screened it, and passed on only such information to a utility as was believed useful. This practice was followed to avoid burdening utilities with a mass of information not relevant to their particular operations. Local commissions, he said, could obtain, on application to their regional office, any further data they required.

In a brief address, Hydro's First Vice-Chairman, W. Ross Strike, mentioned the availability of natural gas, declaring that it represented a challenge to Hydro utilities in devising various ways of meeting this healthy form of competition.

The London Public Utilities Commission, he told delegates, was meeting severe competition from natural gas. As a result, that utility was financing customers up to $500 for rewiring work. This policy was permissible under a private act of City of London recently approved by the Ontario Legislature. He also urged close attention to safety practices, annual budgeting and active support of A.M.E.U. activities by each local commission.

"Gas Competition" was also the subject of a discussion by a panel comprising Dr. V. S. Wilson, Etobicoke Township; A. W. Murdock and T. E. Dietrich, Ontario Hydro, with President, Lt.-Col. A. A. Kennedy, as moderator. Mr. Murdock said there were three main fields in which competition could be expected from natural gas — house heating, cooking and water heating. Hydro was not particularly interested in the first, but it had a large cooking load, which it was going to try to keep. Some utility executives, he said, favored reduction of the water heater load.

(Continued on Page 29)

DURING a "break" in the program, three delegates (left to right): J.H. Summerfeldt, Reeve G.C. Wilson, Cannington, and M. W. Downs, Meaford, were noted as they held a discussion of their own.

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THESE DELEGATES: Front row (left to right) — J. M. Low, A. T. Smith, Lt.-Col. A. A. Kennedy, C. J. Halliday and Robert Butter; Back row — Dr. J. E. Wilson, D. A. Evans, William Brooker, Mayor Charles Parker, (Midland) E. C. Faelker, Harry Thiess and V. A. Ellis were unanimously elected to the 1958 executive.

"Cool" Cables



PIONEERED by Ontario Hydro, and ranking as a "world first," a new and revolutionary system for cooling underground cables has been developed, and is being installed near the route of Metropolitan Toronto's new Expressway project. It is being applied alongside the four, 115,000-volt transmission circuits now being placed underground in the busy Humber River-Strachan Avenue section of Lake Shore Boulevard — part of the work necessary to make way for the vital roadway.

This new development was a high point of interest during an inspection of Hydro operations along the 3½-mile cable route on September 17 by press, radio, television, newsreel and newsphoto representatives.

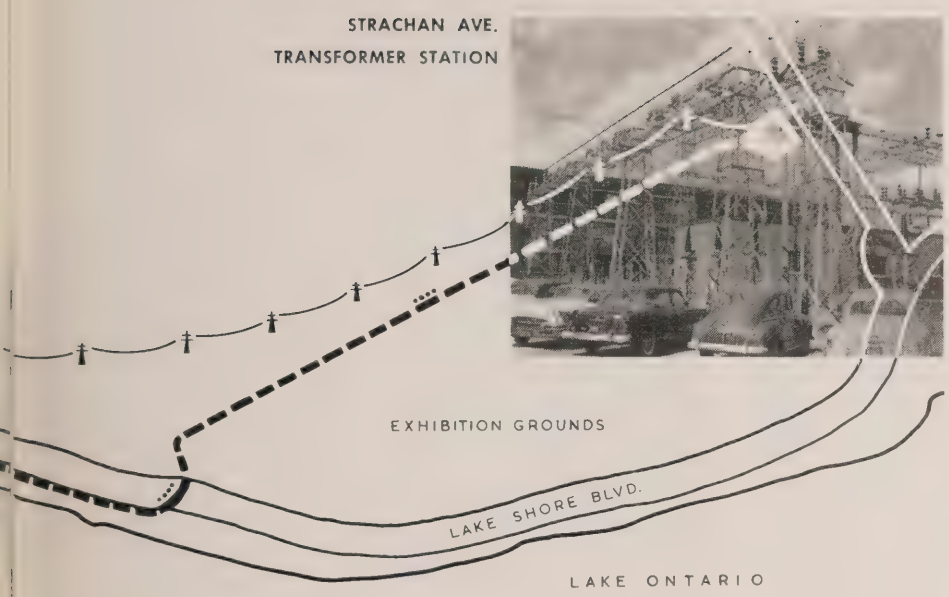
Apart from the installation of the cooling system, this cable-laying project, in itself, is the largest of its kind ever undertaken in Ontario and possibly in Canada. Scheduled to be completed in November of this year, the new "underground" will replace 31 steel towers and associated overhead transmission facilities located within the Humber River-Strachan Avenue section of Ontario Hydro's right-of-way. Situated immediately south of the C.N.R. tracks, this right-of-way was relinquished by the Commission to Metropolitan Toronto as an essential part of the new Frederick G. Gardiner Expressway now being constructed. Metro, in turn, undertook to meet the cost, estimated at $3,500,000, of providing Hydro with equivalent underground transmission facilities. This required the most carefully co-ordinated planning by the various authorities involved.

Temporary Line

Close co-operation between Hydro and Metro enabled Expressway construction to proceed on a substantial portion of the Commission's right-of-way, without interrupting power supply. This was accomplished by building two temporary wood pole lines for a distance of about two miles, so that the corresponding steel towers could be removed.

With the route of the new underground installation settled, Hydro engineers "prescribed" an oil-filled type of cable for the project. An order was placed with Canada Wire and Cable Company to manufacture the cable, and carry out the project under the engineering supervision of the Commission. This company, in turn, was to be responsible for awarding subcontracts for trenching and the laying of the circuits.

Meanwhile engineers in the Commission's Research Division were literally racing against time to complete verification tests on a new cable-cooling system. From their studies had emerged the idea of running cold water pipes beside the underground circuits to overcome problems associated with cable operating temperatures. Power being transmitted through the cables heats them, and the temperature remains



by William Rattray

Ontario Hydro research engineers pioneer revolutionary technique for new underground transmission installation in Toronto

high wherever the cable passes through soil with low heat conductivity, Thus, the amount of power which may be transmitted is limited by "hot spot" sections where soil conditions are resistant to the transfer of heat.

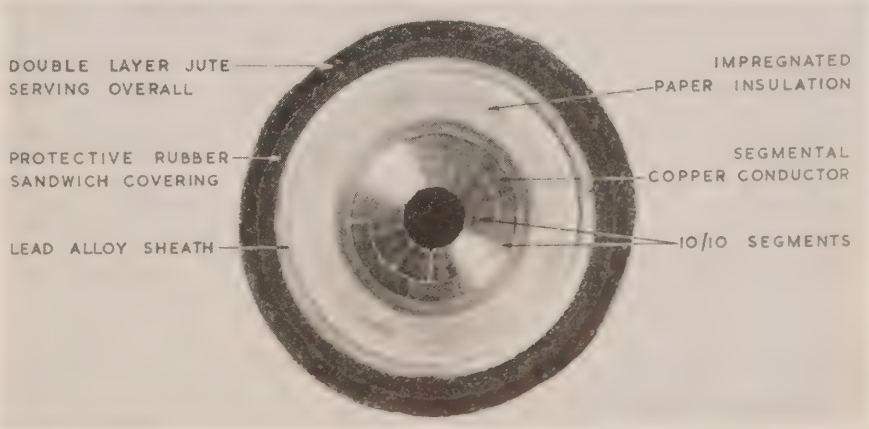
Pressing on with their investigations, Hydro engineers found that polyethylene piping, which is similar in appearance to garden hose, had certain advantages over metal pipe as a water carrier for this particular purpose. This type of piping is economical, flexible, easy to handle, and is regarded as being virtually immune from attack by corrosion.

The element of drama associated with the intensive activity in the Hydro "lab" was heightened by the fact that the final tests were not completed until just four days before the actual cable-laying operations were scheduled to start. From the standpoint of both economy and engineering, it was important that the installation of the cooling system be synchronized with the laying of the cables. A total of 37 miles of polyethylene piping, made to Hydro's specifications, was required for the job. Two Ontario firms, equipped to produce such large amounts of piping quickly, were immediately alerted, and, by April 22, enough piping had been produced and delivered to make a start on the installation of the cooling system.

Polyethylene Pipes

Two polyethylene pipes, with an inside diameter of three quarters of an inch, are laid with each set of three

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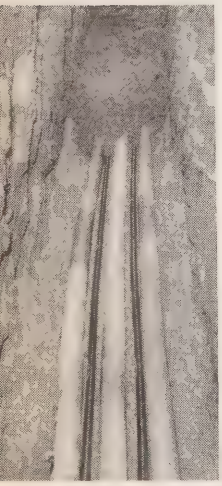
CROSS-SECTION of an oil-filled cable used in the new, four-circuit Toronto underground installation. There are three cables to each circuit or 12 in all—a total cable length of 41.5 miles.



RESEMBLING a mining operation, four tunnels were driven a distance of 320 feet each under a railway embankment to bring the cables from Hydro's Riverside Junction plant to the south side of the tracks. ▷

cables. The relation of this piping to the cable can be readily demonstrated by using zero symbols, the large one representing the cable and the smaller one, the polyethylene piping. They are placed in the trench as follows: OoOoO (as illustrated in the accompanying photograph in this column). Under roadways and the railway embankment, however, the three-quarter-inch piping was too large to fit into the asbestos-type ducts, which encase the cable at these points. As a result it was necessary to use six lengths of half-inch polyethylene piping, two lengths being encased with one cable in each duct to provide the required cooling. Special attachments are used at both ends of each set of ducts to connect the six lengths of the half-inch piping to the two lengths of the three-quarter-inch piping.

Of far-reaching significance in the power utility field, the cable-cooling method, which the Commission is introducing for the first time, is expected to play an increasingly important part as time goes on, making it possible for the underground cables to transmit greater amounts of power as demands increase. Without the cooling system, each of the four circuits now being installed is designed to transmit 140,000 kilowatts of power at 115,000 volts. This represents a total of 560,000 kilowatts for all four circuits operating at capacity. To attempt to transmit additional power without employing some method of cooling would cause the cables to heat beyond the maximum safe temperature. The new cooling system is expected to increase the power-carrying capacity of these particular circuits by at least 50 per cent. This means that, when required, these four circuits combined may be able to carry something like an additional 300,000 kilowatts.



ee cables are separated by polyethylene piping.

When placed in operation, the cooling system will utilize water from municipal mains. At every 1,600 to 2,000 feet, the water will be discharged into sewers and a fresh supply will flow into the piping. Experiments conducted in the Commission's laboratory indicate that when the water is discharged it will be only 10 degrees warmer than when it enters the piping. At both intake and discharge points special fittings are used. Plans now being formulated point to "automation" being applied in the operation of this new cooling system. Thus, when the temperature of the cable rises to a certain point, the water in the piping, activated by electronic controls, would start to flow, carrying away the excess heat from the adjacent cables, thus reducing their temperature. When the safe operating temperature has been induced, the flow of water automatically stops.

Involving a multiplicity of highly-specialized engineering techniques, and the use of special materials and equipment, the installation of the underground transmission facilities beside the Expressway is much more costly than overhead facilities. However, relocation of the overhead facilities was impracticable in this heavily-travelled area. Moreover, such facilities were not considered desirable on this section of the waterfront. Consideration of all problems culminated in Metro providing Hydro with a route for equivalent underground facilities.

From the start the project has been challenging and complex. In determining a route, attention had to be given to the locations of other underground services, while many

EACH of the four tunnels under the railway embankment has been reinforced with wooden cribbing. The ends of three ducts, which carry the cables, are visible under the centre cribbing in the foreground.



EMERGING from the railway embankment tunnels, the four underground circuits (three cables to each circuit) were encased in concrete-covered ducts, which were laid over the bed of the new expressway.



trees had to be by-passed so that the landscape would not be marred in any way. Ducts had to be installed under roadways and railway tracks so that the flow of traffic would not be interrupted.

The job involved in getting the cables from the Commission's Riverside Junction point, on the north side of the railway tracks, under the railway embankment to the south side, was comparable to an actual mining operation. Four tunnels had to be driven under the embankment, a distance of some 320 feet, and they had to be heavily reinforced before the cables could be placed in the concrete ducts, which extend through the tunnels, across the bed of the new Expressway and under the heavily-travelled Lake Shore Boulevard.

Static Head Pressure

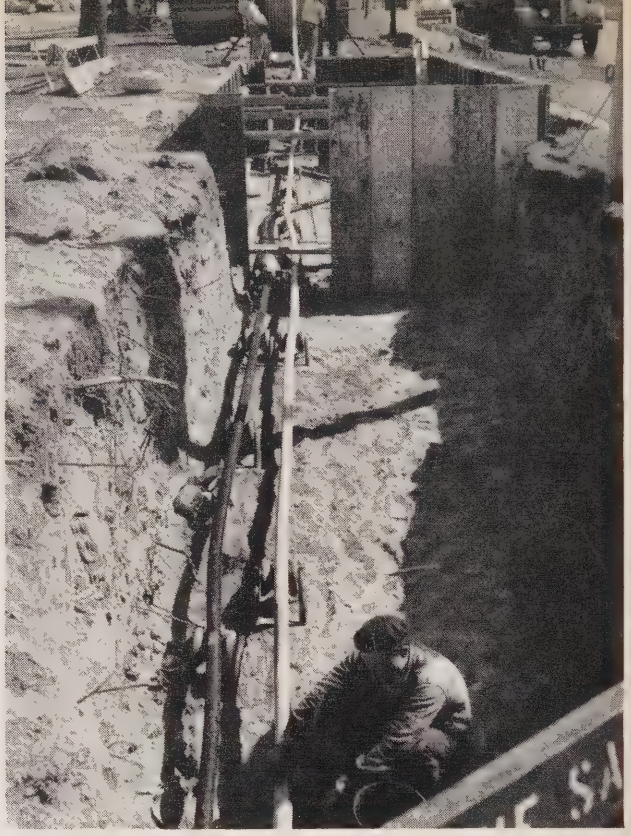
Oil, under a static head pressure of approximately 15 pounds to the square inch, is within the hollow half-inch core of the copper conductor right from the time the cable is made. This pressure is maintained by portable equipment at all times until cable-laying and jointing operations have been completed. Thereafter, the pressure is provided by special oil tanks at suitable elevations. A set of 12 of these tanks, one for each cable, is located at the Riverside Junction point where the overhead transmission lines from the west are connected to the underground cables through 12 potheads, each of which stands about 15 feet above the ground. The oil tanks are located immediately above the potheads. At the eastern terminus — the Commission's Strachan Avenue Transformer Station — are similar sets of potheads and oil tanks. Owing to the variation in the contour of the cable route, it was necessary to establish intermediate sets of oil tanks. These are located within a tall, tower-like brick structure, known as the Static Head Building, (see map on page 10), immediately east of the Navy League Building on the Lake Shore Boulevard. Architectural design of the building was carefully worked out with the Parks Board to meet landscape considerations. Inside this structure, on the west, is a set of tanks at a low level, corresponding to the elevation of the tanks at the Riverside Junction. The set of tanks, at a high level, on the east side of the building, is at an elevation corresponding to that of the Strachan Avenue T.S. tanks. These two oil pressure systems coming together at this intermediate point are designed to overcome the difference in grade levels, and thus maintain a constant pressure throughout the entire length of the underground circuits. This outward pressure from the centre of the copper conductor causes the oil to ooze through the very fine spaces between the strands of the conductor and to saturate the insulating paper, thus keeping

(*Continued on Page 14*)

MACHINES of this type were used extensively in excavating the four trenches for Ontario Hydro's 115,000-volt underground installation.

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SPECIAL ROLLERS are used in laying the underground cable, which is unwound from large spools and pulled along the trenches. The rollers, spaced at regular intervals, help to reduce friction created by the pulling action.

out moisture, and filling any voids.

One of the most interesting, and certainly one of the most highly-skilled operations involved in this project, is that of applying the special insulating paper after the stripped-down ends of two sections of copper conductor have been joined together. This paper, which is about one-and-a-half inches wide, has a dark, translucent appearance. Until they are used, the rolls of this paper are kept in a container of oil at a temperature of 110 degrees. Working quickly and skilfully, the nimble-fingered technician winds this paper round the conductor joint, which is about four feet in length. As he builds up this insulation, layer upon layer, to a definite thickness, an assistant pours warm oil over the windings, from time to time, to eliminate any possible air pockets. When the insulating paper has been applied, the joint is encased in a metal sleeve, which is then laid in a concrete "coffin." After hot rosin has been poured over the joint to assure rigidity and added protection, the lid of the coffin is then placed in position.

These operations are carried out in "jointing bays," which are actually continuations of the trenches in which the cables are placed. While the trenches are between three and four feet deep by about two feet wide, the "bays" are enlarged sufficiently to permit technicians to complete the various jointing processes. As a protection against rain, the bays are covered with tarpaulin canopies.

There are innumerable features of interest associated with this important underground project. Particularly noteworthy is the fact that cable used for one job would not necessarily be suitable for another. In other words, it has to be made to definite specifications to meet the requirements of a particular job. The oil-filled cable specified by Hy-

CHAIRMAN JAMES S. DUNCAN during a recent inspection tour, paused in one of the "bays" to discuss the jointing of one of the heavy cables with Technician Percy Allum.

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dro for installation beside the Expressway has a copper conductor with a half-inch diameter hollow core. The insulation, as already indicated, is oil-impregnated paper, which is covered by a metal sheath. The sheath, in turn, is covered with a coating of Rubber Bitumen, and the latter is protected by tightly-woven jute wrapping. The overall diameter of the cable is approximately three inches, and weighs 10.4 pounds per foot, which means that over 1,000 tons of cable will be required for the entire project.

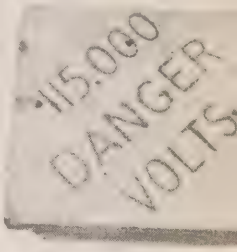
Cable Rollers Used

The actual laying of the cables is an operation, which captures the attention and interest of most passers-by. Pulled by a guide rope, which is operated by a winch, the cable passes over specially-designed rollers that are spaced every few feet in the trench. Where it has to be brought 'round a bend in the trench, special rollers, standing almost perpendicularly, are used so that the cable can be "snaked" around without being bent too sharply.

In the trench, the cables rest on a three-inch deep bed of sand, which has previously been "lab tested," to ascertain that it meets what is known as thermal conductivity requirements. In other words, it must be the type of sand, which will help dissipate heat from the cables. In addition to being used as a bed for the cables, this sand is used also as backfill.

Many of the problems associated with the project were encountered in the Canadian National Exhibition Grounds where, for example, a 2,500-foot concrete roadway, extending west from the Commission's Strachan Avenue Transformer Station, had to be removed and replaced. In addition, engineers had to plan the cable route so that it would not interfere with the trees. Then, at one part of the route in the C.N.E., it was necessary to go under the northeast corner of the Art Gallery Building. This involved considerable planning and construction, including a new concrete floor in the building. Despite these and many other difficulties, all work within the Exhibition Grounds, which had been started on May 1 of this year, was completed one day ahead of the July 15 deadline. In that period, 12 miles of cable, along with the cooling system, were installed in the C.N.E. section of the route.

If anyone, at any time, should thoughtlessly start digging operations over the cable route they will not "strike gold" but concrete, for each circuit is covered with four-inch thick concrete blocks, which are laid end to end along the entire route. On each of these blocks is inscribed the warning: "Danger: 115,000 volts."



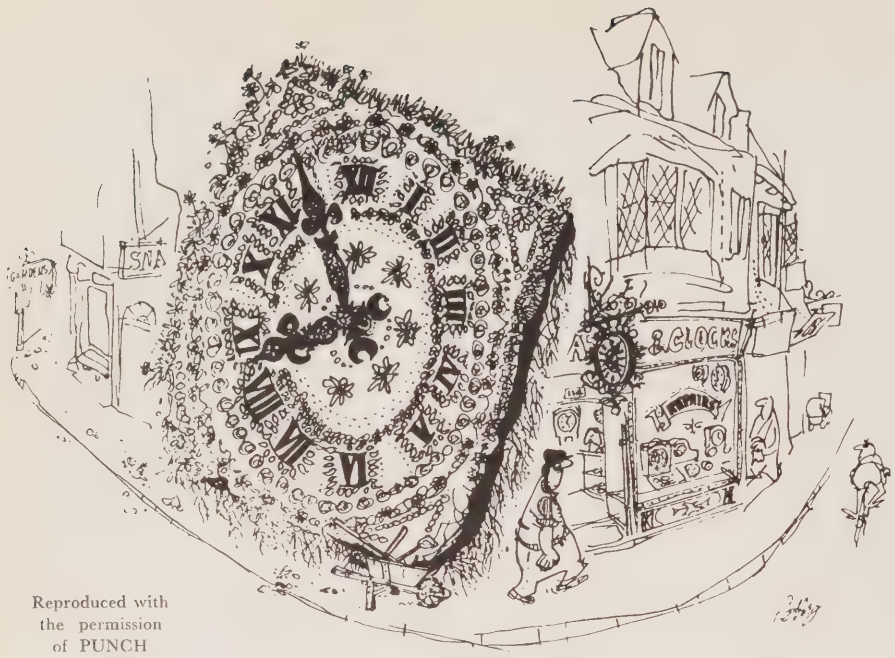
When the four new circuits are placed in service, there will be little to recall the many complex problems, which had to be overcome in completing this historic underground project. ■

METAL SLEEVES encase the completed cable joints. The sleeves are covered with talcum powder for 10 days to ensure that the joints are secure, and that oil is not leaking or otherwise escaping from the cable.



HOT ROSIN is then poured over the completed cable joint which has been placed in a concrete "coffin". The application of rosin and the coffin provide the maximum rigidity and protection for the cable joint.





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British magazine cartoon provided inspiration for design of unique Dunnville P.U.C. timepiece

CLOCK WITH A "PUNCH"

BY HORACE BROWN

GREAT discoveries are often made on the spur of the moment. History tells us that Newton was passing under an apple tree when he was struck on the head by a falling fruit. From that incident — and possibly a severe headache — grew Newton's theory of gravity.

Similarly, John Dawson, who combines his activities as Manager of Dunnville Public Utilities Commission with a flair for the spectacular and the unusual, was leafing through the pages of the October, 1956 issue of *Punch,* the British humor magazine, when a cartoon attached his attention. The cartoon depicted a huge floral clock being trundled to a watch repair shop.

There John Dawson found the design for the face and hands he had been seeking for his latest brainchild — a floral clock for Dunnville. They were elaborately-carved and delicately-balanced, just the hands that any self-respecting floral clock would be charmed to hold before its face.



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GEORGE KUROWSKI, co-designer and builder of the Dunnville clock, tends the planted area. The wooden hand and face of the timepiece, which were inspired by a cartoon in Punch (upper illustration), a British magazine, are kept dry and frost-free by a concealed heater.

For some time, John and his designer and executor - in - chief, George Kurowski, had been dreaming of giving Dunnville a floral clock and a set of chimes to spread melody over the countryside. The project had been encouraged by Hugh Duncan (Ontario Hydro's Niagara Region staff, now deceased), who gave Dawson the original "striker" from the Commission's floral clock, and by the fact that John Dawson feels confident that he can duplicate, at least in miniature, anything Ontario Hydro can do.

With the problem of the hands resolved by the *Punch* cartoon, the team of John and George concentrated on the mechanical phases of the proposed Dunnville floral clock. They were aware that Ontario Hydro's floral clock at Niagara was a fine tourist attraction. They were conscious, too, that it was the largest of its type in the world, and that the hour and minute hands each weigh 500 lbs. and are 14½ feet and 17½ feet long respectively, while the sweep second hand weighs 250 pounds and is 21 feet in length. They knew that the overall diameter of the Hydro clock face is 40 feet, and the planted area diameter 38 feet.

Their floral clock, they decided, would have a few minor differences.

The hands of *their* clock would be four feet long, and being of cedar construction (they tried a couple of other woods first) would weigh considerably less. The dimensions of the clock would be 10 feet by 14 feet. The Dunnville clockmakers also reached agreement that the local timepiece, while not visible for as great a distance as its Niagara prototype, would at least be heard a lot farther afield.

Total Cost $119

While Kurowski went ahead with the design, John Dawson began "scouting" for the materials to be used in the great experiment. In his search he collected such items as: An antique German clock (slightly weatherbeaten, about two feet high), $25; amplifier, $25; two loudspeakers at $20 each, $40; microphone, $5; 1/10-horsepower motor, $5; sundry bicycle parts, $2.35; sundry washing-machine parts, $3; plywood for clock face, etc., $8.60; sugar pine for the Maple Leaf design and corner ornaments, $3, and cedar for numerals and hands, $2 — Total, $118.95.

The "fantastic" cost of this apparatus was cut considerably due to the donation of two phonograph speed-reducers by a local theatre, and a section of an oil-breaker discarded by Dunnville P.U.C. All costs were borne by Manager Dawson, but he had the blessing of the Dunnville Commission, which has consistently supported the novel inventions of the imaginative manager. The commission has learned, too, that John Dawson's ideas usually bear fruit, are good for Dunnville, and end up being copied elsewhere.

With the assorted gear at his disposal, Mr. Kurowski went willingly to work, with results pleasing to both eye and ear. After the consent of the commissioners had been obtained, Dawson installed the loudspeakers on the town's water reservoir, 100 feet above ground level. Thus, by means of a connected amplifier system, the chimes can be heard five miles away.

Audible Ticking

Other things were audible too, apparently, so a sign had to be posted warning utility employees in the Waterworks Department laboratory, where the mechanism is located, that they were "on the air," and should govern their language accordingly. One unexpected by-product of the clock's operation is its ticking, which can be heard a block distant. Dawson bought the mechanism to eliminate this sound, but he had so many requests from "listeners" to leave the ticking alone that the eliminator has not been installed. Those in Dunnville who hear the ticking apparently find it comforting and companionable.

The Dunnville Commission decided that its now-famous floral clock should be located in the shadow of the water reservoir, and provided some parking space there. The grounds in the immediate area have been tastefully landscaped, with shrubs and bushes complementing a small pool and decorative fountain. Two standards support small fixtures for floodlighting the clock at night.

The Dunnville timepiece naturally excited the interest of Ontario Hydro's Niagara Region staff, who

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JOHN DAWSON, inventive utility manager and originator of the project, tests the amplifier and loudspeaker system, which carries the sound of the chiming of the old German clock (above) for a radius of five miles. The time switch (centre) automatically shuts off the system from 11 p.m. to 7 a.m.



OIL FOR THE CLOCK OF DUNNVILLE! Wray Shields, utility employee, does a lubrication job on the mechanism which drives the hands of the timepiece. Operated by a 1/10-hp. motor from a teletype machine, the gears are connected by former bicycle chains.

Challenge for Utilities

Must sell electrical service, E. O. M. E. A. delegates told



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REPRESENTING Ajax Hydro-Electric Commission, the newest member of the district association, these delegates (left to right): Edmund Steer, Mayor Kenneth Smith and Jack K. Sanders received a special welcome during the convention from the retiring E. O. M. E. A. President, J. G. Baldwin, Lindsay.

AN INTERESTING program, with better electrical living as its principal theme, drew an enthusiastic attendance of some 170 delegates at this year's Eastern Ontario Municipal Electric Association Convention.

Before delegates got down to serious discussion, they were guests of the Canadian General Electric Company during a tour of the company's large Peterborough plant. At the same time, several delegates were participating in an A.M.E.U. golf tournament at Kawartha Golf Club on the outskirts of Peterborough, site of the two-day gathering.

Climaxing the first day's program was a gala banquet and presentation of golf prizes in the Kawartha Room of the city's Empress Hotel, headquarters for the 1957 convention. W. Ross Strike, Hydro's First Vice-Chairman, formally presented the silver trophy and accompanying prize to C. E. Cansfield, Toronto, the golf tourney victor.

A fast-moving program, with E.O.M.E.A. President J. G. Baldwin, Lindsay, capably guiding proceedings, featured the convention's business session.

Luncheon Speaker

As guest speaker at the concluding luncheon, W. Ross Strike drew applause with his address on "Administration Policies," during which he appealed to O.M.E.A. representatives to give their full support to the expanding activities of the A.M.E.U.

The latter organization, he said, was "measuring up" to its responsibilities, and meeting new challenges as they presented themselves.

A.M.E.U. members, he said, realized the important work that they could do by pooling their great resources of knowledge. Thus they were organizing to give the individual municipal utilities the best possible service. This valuable effort could only continue as long as O.M.E.A. representatives were willing to give utility managers the opportunity to "contribute and learn

about every phase of utility operations." Continuing, Mr. Strike also pointed out that the A.M.E.U. regional associations were designed as supplementary groups, and did not represent a "break-down" or decentralization of the provincial association.

Competition Anticipated

Expressing the belief that competition from other sources of energy was likely to be stepped up considerably within the next few months, the speaker said the situation demanded the utmost understanding between the utility and its customers.

As one step in the improvement of customer relations, Mr. Strike suggested that customers be provided with all the available information relating to the disposal of surplus funds. While dealing with this phase of utility operations, the speaker stressed the wisdom of setting up a budget for capital and maintenance expenditures.

"A utility operating without a budget can be compared to a rugby team trying to play without knowing the location of the goal posts," he stated.

Must Inspire Loyalty

Effective internal administration must be coupled with a program to inspire customer loyalty and co-operation, Mr. Strike pointed out. This would entail a vigorous merchandising campaign by which customers would be provided with information about the services that an electrical utility could provide; the comparative cost of the service, and the many improvements in electrical appliances that are to be made within the foreseeable future, particularly in the cooking, heating and visual fields.

If utilities fail to maintain their electrical loads, rates will, necessarily, be increased, allowing competitors to raise their rates. "Thus the public, which has a right to expect it, will not have been adequately protected."



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HIGHLIGHT of the convention's first-day program was an A.M.E.U. golf tournament climaxed by a gala presentation dinner when Hydro's First Vice-Chairman, W. Ross Strike (left), formally awarded the trophy and a prize to the smiling winner, Charles Cansfield, Toronto.

Deploring the prevalence of complacency among many utility representatives, Mr. Strike predicted many complicated problems in the immediate future, which would require "ingenuity and imaginative and serious thinking" to produce a solution. Mr. Strike, who was introduced by M. J. Elliot, Bowmanville, received a vote of thanks tendered by Frederick Hills, Peterborough.

Speaking in a somewhat similar vein was Bert Merson, Toronto, Executive Vice-President of the O.M.E.A., who extended greetings to the delegates on behalf of President Gordon H. Fuller, who was unable to be present due to illness.

Electrical "Stewards"

Calling for a little "stock-taking" among O.M.E.A. members, whom Mr. Merson described as "stewards of a $2½ billion organization for the distribution of electricity," the speaker described the O.M.E.A. district groups as the "life-blood" of the parent organization.

Joining with Mr. Strike in his appeal against complacency, Mr. Merson declared that "We should be merchandising our article with the utmost vigor."

While Hydro utilities in Ontario were not afraid of competition, the province-wide organization had reached a critical stage in its career. Thus each member must strive "to live up to the high standards set by our predecessors."

Selling Electricity

In keeping with the general theme of the meeting, I. K. Sitzer, Hydro's Director of Consumer Service, provided delegates with some well-timed suggestions for "Selling Electrical Service."

At the outset of his remarks, Mr. Sitzer pointed out that Ontario, with 33.6 per cent of the national population, ranked as one of the largest users of electric energy for domestic purposes in the world. In fact, on the North American Continent, it was exceeded by only a few areas

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USING oversize dominoes to illustrate conditions relating to accidents, Roy Beith, Manager and Secretary-Treasurer, Electrical Employers Association (left), discusses aspects of his convention address with two delegates, ReeveE. J. Reeson, Havelock and H. S. Britton, of Newcastle.

in Manitoba, the Tennessee Valley and sections of the United States Pacific Northwest.

In 1955, for example, Ontario's domestic customers used approximately 50 per cent of all the electrical energy sold for domestic purposes in Canada. Dealing more specifically with this subject, Mr. Sitzer referred to the load factors of many municipalities. In this connection he stressed the diversity of the various types of loads supplied by local utilities.

Presenting comparative figures for 1936 and 1956, the speaker reported that utilities in southern Ontario during 1936 used each kilowatt of purchased power an average of 4,600 hours, or 12.6 hours a day, 365 days a year. By 1956, with four times the power being used, each kilowatt was used 5,420 hours a year—an increase of 18 per cent.

Domestic Costs Down

In the same period, while domestic customers virtually tripled their energy consumption, and utilities' total expenses per kilowatt of purchased power decreased by an average of six per cent, the cost per kilowatthour to domestic customers decreased by 31.5 per cent.

Expressing the view that "higher costs of many items, such as labor, materials, etc., are here to stay," Mr. Sitzer warned that utilities must endeavour to keep rates and costs at the lowest possible level.

One of the most satisfactory methods of countering increased costs, without resorting to rate increases, was to ensure that the use of energy continued its upward trend.

Fortunate Position

Ontario utilities were in a fortunate competitive position, he continued, due to their ability to sell energy to domestic customers at an average of 1.153 cents.

"Just consider for a minute what our position would be if we were forced to sell at 2.58 cents per kwhr. — the average rate to all domestic customers in the United States."

The speaker then modestly proceeded to set out a blueprint for utilities in their retail operations. Dealing with water heaters, Mr. Sitzer said that this type of electrical appliance operated with little variation in demand between summer and winter, creating an annual load factor of 70 to 80 per cent.

Utilities, he said, should check installations of this type to ascertain that satisfactory service was being provided. Properly engineered installations were a "must" to meet competition, he stressed. To the extent that it was possible to keep the water heater load "off peak" — in whole or in part — it was highly remunerative, assisting simultaneously in maintaining voltage control on the distribution system.

Service Shops

Turning to the question of facilities for repair and servicing appliances, Mr. Sitzer advocated that utilities must consider establishment of such a department in cases where appliance dealers were not available.

"Non-operative appliances sabotage the 'living electrically' idea, and when appliances are idle, your distribution system is idle."

To promote the sale and use of electrical appliances, utilities must also make certain that credit arrangements are available to their customers to meet competition from other types of equipment.

While the electrical industry was making a major effort to remove the "bottleneck" of inadequate wiring and service entrances, utilities must participate more actively in the campaign being conducted by the Electric Service League of Ontario, and also co-operate with local electrical contractors in this program.

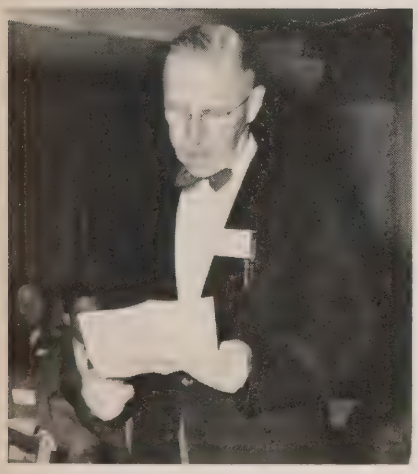
Turning again to the question of rates, the speaker recommended the adoption — "at the earliest possible date" — of the domestic, four-block rate structure. Providing a large, 500-kwhr. block of energy at the lowest cost, this structure was necessary to meet present-day supply conditions, and also encouraged "a more liberal use of energy by a large majority" of Hydro domestic customers.

"It is anticipated that approximately 100 municipalities will be

ELECTION of the 1958 executive, front row (left to right): J. G. Baldwin, President Dr. R. A. Patterson, Secretary-Treasurer E. V. Dyke; Back row: Frederick Hills, H. S. Graham, L. L. Coulter and E. J. Bryant received unanimous approval.







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M. J. ELLIOTT, Bowmanville, presented a resolution urging a longer business session at future meetings. The resolution was approved.



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CLARE CAMPBELL, Trenton, reported on the activities of the Eastern Ontario A.M.E.U.

using this schedule by the end of 1957," the speaker pointed out.

In concluding his helpful address, Mr. Sitzer urged that utility staffs be made "fully conversant with the advantages of electrical service" so that they would be able to discuss this phase of electric power supply with customers.

100-Ampere Service

Backing Mr. Sitzer's appeal for support of the Electric Service League of Ontario, Manager Harry Foy, recommended that utilities encourage the installation of 100-ampere service in private homes, the minimum Red Seal requirement established by the League.

Deploring the fact that many contractors were building homes "with profit as the main objective," the speaker also asserted that many expensive homes had only the absolute minimum of circuit capacity. This tendency to limit electrical capacity was poor economy as installation of a 100-amp service, instead of an 70-amp service, represented an additional expenditure of about $14.

National Electrical Week

Referring to the 1958 observance of National Electrical Week, Mr. Foy pointed out that the O.M.E.A., A.M.E.U. and Ontario Hydro would appoint three members to a provincial committee, which would also include representatives of other industrial organizations. Each O.M.-E.A. district association and A.M.-E.U. regional group, in turn, was being asked to appoint three members to serve on a regional committee, which would also include Ontario Hydro's Consumer Service Engineer of the regional staff concerned. These regional committees would be responsible for handling National Electrical Week observances in the municipalities included in their region by encouraging municipal utilities to organize local committees, composed of utility and interested group representatives.

Accident Prevention

Turning from electrical promotion to accident prevention, delegates heard an instructive address by Roy Beith, Manager and Secretary-Treasurer of the Electrical Employers' Association.

Mr. Beith pointed up the alarming fact that 18 men, to his knowledge, working for Ontario utilities, had died during the first eight months of 1957 as the result of acci-

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NIAGARA'S NEW MAGIC

(Continued from Page 7)

These gates are raised and lowered by means of a hydraulic system controlled from a building at the shore end of the dam.

In order to produce an unbroken crestline and achieve the desired even distribution of flow over the Horseshoe Falls, two areas were excavated. On the Canadian flank of these Falls, approximately 75,000 cubic yards of rock in the channel were excavated, while work on the second area, on the Goat Island flank, involved the removal of 30,000 cubic yards of rock.

Appropriate construction and landscaping have been done in order to provide attractive vantage points from which visitors can view the majesty and power of the cataract.

At the outset, it was estimated that the cost of the Remedial Works Program would be approximately $17,500,000, to be shared equally by the two countries. The fact that it has been completed for some $5,000,000 less than that figure not only reflects credit upon the ingenuity of both United States and Canadian engineers, but it serves to emphasize the increasing importance of the tests, which are carried out on hydraulic models before actual construction is started on engineering projects of this character.

The many and far-reaching benefits, which will be derived by both the United States and Canada as a result of this all-important conservation program are likely to become increasingly significant with the passing of the years. For centuries there has been a certain magic associated with the name of Niagara Falls for it is synonymous with one of the great wonders of the world. The tremendous year-round influx of visitors to this area has been, and is, an important factor in relation to the national economies of Canada and her friendly neghbour.

The conservation program, which has now been completed, offers the assurance that "the magic" of Niagara will be preserved not only for the people of this generation but for many generations to come. ■

CHALLENGE FOR UTILITIES

(Continued from Page 21)

dents. Five of these men, he said, were employed by utilities affiliated with the Electrical Employers' Association.

Calling for better leadership in preventing accidents, the speaker in addressing himself particularly to representatives of smaller utilities, urged the employment of only experienced, qualified linemen. He also advocated that utilities, which employed only one lineman, or a lineman and a groundman, establish a firm understanding that "no work be done on primary lines while energized, or on poles where it would be necessary for a lineman to put himself within reaching distance of a live primary line."

Training School

Declaring that lack of training and lack of proper supervision appeared to be two definite weaknesses in the utilities where accidents had occurred recently, Mr. Beith voiced the belief that utilities should consider "some training scheme for their linemen."

Delegates evinced considerable interest in his announcement that the E.E.A. had developed a two-day course on "Accident Prevention Through Informed Supervision," which would be put into operation in November.

Using large-scale dominoes, depicting the various conditions related to accidents, the speaker demonstrated the instruction methods that would be introduced during the course.

"Each utility holding membership in the Electrical Employers' Association will be approached to have their supervisors and foremen attend," he said.

Emphasizing the expanding role of the A.M.E.U., Clare Campbell, Trenton, East Central Region Director, presented a concise report on the formation and the subsequent activities of an Eastern Ontario regional association.

During the business session, Secretary-Treasurer J. H. Lightbody reported that 62 utilities were paid-up members of the association, while the dues of seven other members were still outstanding. Mr. Lightbody also presented evidence of a healthy financial position with his statement that receipts for the previous year had exceeded expenditures by approximately $1,999.

Longer Business Session

With the concurrence of the Resolutions Committee, M. J. Elliott, Bowmanville, introduced a motion from the Lindsay Hydro-Electric Commission. The resolution, urging that the business sessions of the annual conference henceforth commence at approximately 2.30 p.m., on the first day of the convention, and terminate at 12 o'clock on the second day, was approved by the delegates.

President Baldwin, in his introductory remarks, welcomed three representatives of the Ajax Hydro-Electric Commission, the newest member of the district association. He also commended the work of James Turnbull, Secretary, Peterborough Utilities Commission, in completing all local arrangements for this year's gathering.

Climaxing the meeting, delegates unanimously acclaimed Dr. R. A. Patterson as their 1958 President, with the following panel of executive officers: J. G. Baldwin, Lindsay, Immediate Past President; H. S. Graham, Newcastle, 1st Vice-President; L. L. Coulter, Ottawa; Second Vice-President; E. V. Dyke, Smiths Falls, Secretary-Treasurer; Directors: J. R. Carter, Kingston; Frederick Hills, Peterborough; E. G. Patterson, Carleton Place; E. J. Bryant, Whitby, and Henry Walter, Brockville. — *by B. L. Graham.*

Submarine School

With a staff totalling some 21,000 men and women, Ontario Hydro naturally lists some unique occupations on its payroll.

Many members of the Hydro "family," — the well-known linemen — work above the ground on transmission and distribution lines, while thousands more work at ground level. But there is still another group of men who labor at a still different level and in a different element — water. These are the five Commission divers on Hydro's regional staffs, who spend part of their time underwater in the vicinity of Ontario Hydro generating stations, as well as a number employed by the Construction Division.

There are many duties to keep the regional divers busy. At the Richard L. Hearn and J. Clark Keith thermal-electric stations in Toronto and Windsor, for instance, the water intakes and docks have to undergo inspection at regular intervals. At the hydraulic plants, one of the principal tasks for divers is helping to remove debris, mainly sunken logs, from the trash racks. This is a big job at the Nipigon River plants and, to a lesser extent, at plants on other rivers.

Other duties include inspection of underwater concrete, wood and steel sub-structures, the application of waterproof sheeting on cofferdams, as well as repairing this sheeting, and salvaging sunken equipment.

When the surface of a concrete pier at one plant was scaled away by repeated freezing and thawing action, it was routine for a diver to descend, and report how far the damage extended below the water line.

In emergencies, too, the divers have been loaned to other organizations for inspection and repair of water intakes, and even for repairs of ships.

Diving is an occupation where mistakes can easily prove fatal. So on certain occasions Diver William Lindsay from the Niagara Region goes on a "busman's holiday" in other regions, instructing Hydro crews in the art of safety diving.

Northern "School"

Quite recently, this ex-Royal Canadian Navy diver visited northeastern Ontario where he put eight Hydro maintenance men through a vigorous training course, The course, sponsored by the Commission, is designed to relieve a shortage of trained diving personnel in this section of Ontario.

Representing Hydro crews in the Timmins-Haileybury-New Liskeard area, the underwater novices used a British navy Siebe-Gorman suit, weighing 300 lbs. manned. Other pupils stood by, equipped with Scott Airpaks and flippers, ready to go to the assistance of a student diver in case of trouble. These aqua lungs are customarily used for emergency repairs.

Hydro's northern diving school included practice in using a work bench and tools underwater. The "pupils" gained experience, too, in working in clear and dark water, as many men lose their sense of

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ANOTHER experienced Hydro diver, Leo Phillion, Haileybury (left), helps Instructor, Bill Lindsay, to demonstrate the various uses of Scott Airpaks to a "student", Bill Mallett, Cobalt (right)



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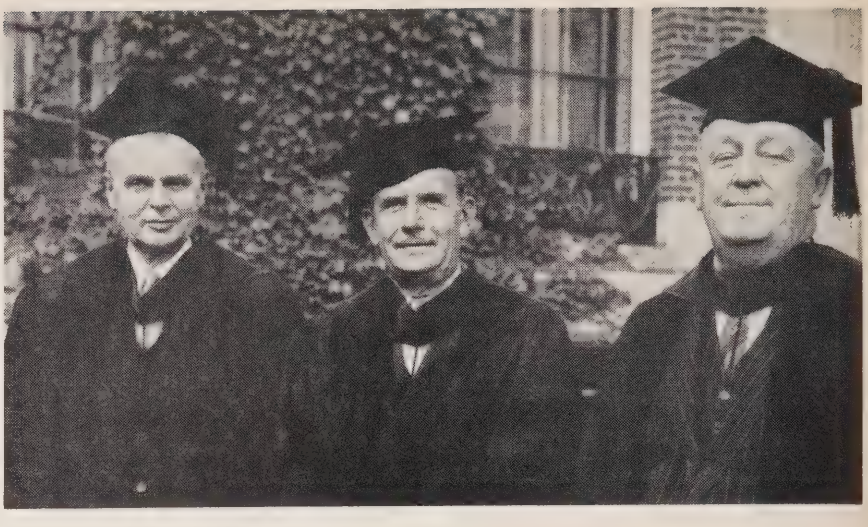
EMERGING from the dark waters of Lake Temiskaming, one of the Hydro students receives assistance from two fellow-workers in removing the headpiece of the diving suit.

ALONG HYDRO LINES



Appoint J. A. Gurnham Preston P.U.C. Manager

J. A. Gurnham has been appointed Manager of Preston Public Utility Commission. Associated with Brantford P.U.C. for the last two years as a specialist in frequency standardization, Mr. Gurnham was formerly a Director and engineer with the St. Lawrence Power Company at Cornwall. A graduate of McGill University in electrical engineering, Mr. Gurnham served in the R.C.N.V.R. and the merchant marine as a wireless operator for five years during the Second World war. He is a member of the Association of Professional Engineers of Ontario, the Engineering Institute of Canada, the American Institute of Electrical Engineers, and is presently a subsection Chairman of the Engineering Section of the A.M.-E.U. The 36-year old utility executive is married with two children. Abraham Bowman, who has been Acting Manager since the resignation of H. B. Mattson, will remain as Assistant Manager.



DARTMOUTH COLLEGE HONORS HYDRO CHAIRMAN

Hydro Chairman James S. Duncan, C.M.G., was honored by Dartmouth College, Hanover, New Hampshire, on September 7, when he received the honorary degree of Doctor of Laws (LL.D.), which was conferred by John Sloan Dickey, President of the college.

The citation, paying tribute to Mr. Duncan, read in part: "Today, throughout the international community, you are known as a pioneer among the growing group of far-sighted business statesmen, who bring both vision and daily reality to the free world's case as a better way of life."

On September 6 Mr. Duncan also participated in the "Dartmouth Convocation on Great Issues." He was associated with Sir Geoffrey Crowther, Managing Director of the noted British publication, *The Economist*, and Paul G. Hoffman, a distinguished U.S. public servant, businessman, philanthropist and writer, in a panel discussion on "Paths of Unity in the Anglo-Canadian-American Community."

An internationally-known industrialist before he became Chairman of Ontario Hydro on November 1, 1956, Mr. Duncan is shown after receiving the honorary degree with Canada's Prime Minister, Rt. Hon. John Diefenbaker, and Dr. Sidney Smith, Canadian Minister of External Affairs, who were similarly honored.

Dim Street Lights For Yuletide Display

Christmas lighting on Kitchener's main thoroughfare, King Street, will have a brighter glow this year. At the request of the Downtown Businessmen's Association, which is handling the Yuletide decoration project, the City Council has authorized Kitchener P.U.C. to temporarily reduce the wattage of street lighting fixtures from 500 to 300 watts. This will make the colored, 200-watt bulbs more noticeable.

Hespeler Purchases Rural Facilities

Hespeler Hydro-Electric Commission has purchased from Ontario Hydro the distribution facilities in an area of Waterloo Township annexed by the municipality last year. At a recent meeting the Hespeler Commission approved the purchase price of $4,264, plus any interest and evaluation charges. The transfer has since taken place, and the facilities involved are now being operated by the local utility.

"BIGGEST AND FINEST"

"THE biggest and finest" was the description accorded the St. Lawrence Power Project by Herbert Hoover, ex-President of the United States, after completing a tour of the impressive international development. Accompanied by representatives of the Power Authority of the State of New York and Ontario Hydro, the joint partners in the project, Mr. Hoover paused with a smile of satisfaction to survey the adjoining powerhouse structures as he recalled his unwavering advocacy of the project while serving as the U.S. Chief Executive more than a quarter-century ago. The towering outlines of one of the two powerhouses provided an impressive backdrop for the party, left to right: Col. W. S. Chapin, General Manager, and Chairman Robert Moses, of the Power Authority; Hydro Chairman, James S. Duncan, Mr. Hoover, and Dr. Otto Holden, the Commission's Chief Engineer, shown in the accompanying photograph during the visit.



Atikokan Hydro Leases Office

Atikokan Township Hydro-Electric Commission and Ontario Hydro's Atikokan R.O.A. staff have moved into new offices in the former Atikokan Post Office building. In announcing the recent move, Chairman William A. Ferguson said the local utility had leased the first floor of the building and would rent some of the space to Ontario Hydro for its Atikokan Area staff. Although the distribution facilities serving the municipality were acquired by the township council in September, 1956, the Atikokan Area staff has continued to operate the system for Atikokan Township until the appointment and training of a municipal staff has been completed.

London Extends Scope Of Underground System

London Public Utilities Commission is planning to spend more than 15 per cent of its 1957 capital works budget of $576,000 — second highest to date — on construction of underground ducts and cables. Virtually all overhead lines have already been eliminated from downtown London, and the commission's year-to-year underground program is progressing at a rapid rate, General Manager V. A. McKillop announced recently. The London utility's new works program was stepped up this summer, although some $95,000 had been spent in system improvement and extensions by the end of March this year.

Name Successor To R. H. Martindale

R. H. (Rex) Martindale, former Manager-Secretary of Sudbury Hydro-Electric Commission and latterly Superintendent of the city's Waterworks Department, retired from the latter position on October 1 this year, but will remain as consultant for an indefinite period.

He has been succeeded by Dennis McKinty, a member of the city's engineering staff.

Mr. Martindale, who assumed charge of the Nickel City's power plant in 1902 and later all waterworks facilities, resigned from his dual position in 1953. When no successor was found for the waterworks post, he agreed to remain.

Associated with Sudbury's civic development for over a half-century, Mr. Martindale also took a keen interest in the activities of several technical associations, notably the A.M.E.U. of which he was President in 1952. Ontario Hydro recognized his outstanding contribution to the field of engineering in 1951 when it renamed the commission's large and important transformer station near Sudbury in his honor.

Niagara Region A.M.E.U. Names 1957 Officers

Members of the Niagara Region of the A.M.E.U. at their recent meeting in Dunnville elected L. E. Richardson, Manager, Merritton Hydro-Electric Commission as President for 1957.

Other officers elected included: Thomas W. Houtby, Welland, Treasurer, with J. K. Picken, Ontario Hydro, Niagara Falls; E. A. Jordan, Port Colborne, A. W. Pratt, Welland, and John Dawson, of Dunnville, as Directors. Official greetings to the delegates were extended by Mayor Harold McQuatty, Dunnville.

Preston P.U.C. Chairman, Oliver J. Little Resigns

Oliver J. Little has resigned as Chairman of Preston P.U.C. for health reasons, but will continue to serve as a commissioner. R. F. Sidenius, Vice-Chairman, has assumed the chairmanship for the balance of the year.

St. Catharines P.U.C. Opens New $75,000 Substation

W. B. Elliott, Chairman of St. Catharines P.U.C., recently officiated at the inauguration of the utility's new $75,000, Welland Ave. substation, describing it as a "key point in the new underground network system serving the city's downtown section." Also participating in the brief ceremony was the P.U.C. Works Committee Chairman, R. D. Hunter, who closed the switch connecting the station and the new 13,000 - volt underground cables. Completely automatic in operation, the station is equipped with an air blast circuit breaker, which will disconnect lines damaged by lightning or falling limbs.



"HOT" WORK IN SWEDEN

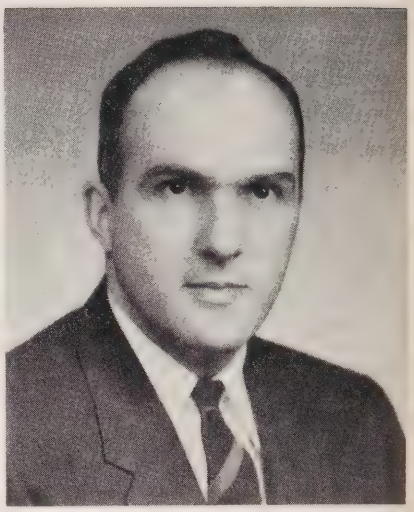
The July-August issue of **Ontario Hydro News** carried an article on the Commission's new live line technique used in changing hardware on high tension lines. The accompanying photograph is also of interest as it shows Swedish linemen engaged on a live, 400,000-volt line. Working 100 feet or more in the air, they are manipulating the shifting insulator strings.

APPOINTED A.G.M. - ENGINEERING

Appointment of Harold A. Smith to the position of Assistant General Manager — Engineering, was announced recently. He succeeds G. D. Floyd, who is retiring from the position, but is remaining with the Commission for a time to undertake special duties.

Mr. Smith, for the past several years, has been resident at Chalk River, Ontario, in charge of Ontario Hydro's nuclear development work, carried out in conjunction with Atomic Energy of Canada Limited.

Born at Lucknow, Ontario, Mr. Smith received his early education at Tara and Dutton. He joined Ontario Hydro's System Planning Section in 1940, upon graduation in Electrical Engineering from Queen's University. From 1943 to 1945 he served with distinction in radar development work with the Royal Canadian Navy, and was awarded the M.B.E. Since returning to the Commission he has held a number of highly responsible engineering positions, including Assistant to the Director of Engineering and Frequency Standardization Engineer. At Chalk River, he initially served as Co-ordinator, Nuclear Power Group, which consisted of an 11-man team carrying out joint studies on the feasibility of generating power from nuclear reactors. In 1955 he was appointed Director, Nuclear Power Project.



HAROLD A. SMITH

Mr. Smith is a member of the Association of Professional Engineers of the Province of Ontario and of the American Institute of Electrical Engineers.

M. K. Rukavina Heads A.M.E.U. Group

At a recent organization meeting held in Ontario Hydro's Northeastern Region building in North Bay, M. K. Rukavina, Superintendent of Kapuskasing P.U.C., was elected President of the newly-formed Northeastern Region A.M.E.U.

A. A. Kidd, Cochrane, was named Vice-President, and O. W. Harris, North Bay, was appointed Secretary-Treasurer, while J. A. Ruttan, Ontario Hydro, North Bay; Paul Gravelle, Sturgeon Falls; R. L. Aubry, Sturgeon Falls, and B. M. Graham, North Bay, were named Directors of the new group.

On behalf of the parent organization, J. A. Williamson, Niagara Falls, A.M.E.U. Vice-President, who with Secretary-Treasurer W. R. Mathieson, Toronto, was among the 30 municipal and Ontario Hydro representatives attending the meeting, presented a cheque for $25 to the new president to form the nucleus of an association bank account. A. B. Hayman, Consumer Service Engineer, Northeastern Region, gave an instructive review of the new municipal resale rate structure, which was being introduced in municipalities in conjunction with required changes in customer rates. The new basis for computing the billing of streetlighting charges to municipalities during 1956 and 1957 was discussed by E. J. Simms, Municipal Accountant, Northeastern Region. ■

$2,000,000 HYDRO PROGRAM

Ontario Hydro is proceeding with a $2-million expansion program in the Sarnia area to meet the increasing power requirements of industry in that section of Ontario.

The capacity of the St. Clair Transformer Station will be increased from 90,000 kva. to 190,000 kva. to meet the demands of the new $28,000,000 Imperial Oil Ltd., petrochemical plant and allied industries, which generally locate close to the supplier. The petrochemical plant is scheduled for completion in April, 1958. At Sarnia Transformer Station, the capacity is being increased from 63,000 kva. to 175,000 kva. to meet the proposed increase in load at the Dow Chemical Co. Ltd. To provide better voltage regulation, and to increase service security to the area the supply to Sarnia will be changed from 115 kv. to 230 kv. in 1959.

The transformer capacity at both St. Clair and Sarnia Transformer Stations will be more than doubled, while the firm capacity will be tripled. Two banks of transformers will be added to St. Clair T.S. where two units are in service, and similar additions will be made at Sarnia T.S.

Describing the expansion program as a progressive process "which is never finished," Manager R.M. Laurie, Western Region, London, said additional power would be made available from time to time during the program. More power is necessary, not only to supply the demands of existing industries, but to provide for the needs of new plants, including that of the DuPont Company of Canada, which has purchased a 60 acre site for a plant just north of Corunna. ■

METERMEN'S FORUM

An attendance of some 110 delegates at the recent semi-annual meeting demonstrated member interest in the activities of The Central Ontario Meter Association. Held this year at Atherley, the meeting included the presentation of three enthusiastically-received papers on: "Ultrasonic Cleaning" by Harold Schwarz, Toronto; "Torque Demonstrator" by James Mitchell, Hamilton, and "Why Maintenance?" by Allan Lawson, Sarnia. A question period conducted by Lionel Blaker, Ontario Hydro, concluded the successful meeting. A group of delegates, shown in the accompanying photograph, left to right: Norman Redsell, Etobicoke Hydro-Electric Commission; Al Christie, North York Hydro-Electric Commission; Norman Lake, Ontario Hydro; Douglas Bruce, Sangamo Co. Ltd., Toronto, and Bert Clerk, Etobicoke Hydro, were caught in a "reflective" mood during a recess period.



Award Contract for Rural Office

A contract for the construction of the Vankleek Hill Rural Operating Area office and warehouse has been awarded to a local firm, the Sinclair Supply Co. Ltd. The new building is scheduled for occupancy later this year.

Classified Ads

FOR SALE

Quotations are invited for the purchase of certain electrical equipment, which has recently been removed from service, and which is in first class operating condition. It may be inspected in storage at the High Level Pumping Station, Poplar Plains Road and Cottingham Street, Toronto, telephone WA. 3-5114; The following equipment is offered for sale as is, where is, and shall be removed by the purchaser within two months of date of purchase: SWITCHGEAR — Canadian Westinghouse Company Limited 7500-volt, gum filled, metal clad switchgear, rated at 150,000 kva interrupting capacity. Auto-Transformers. — Two 2200-volt auto-transformers for starting duty, rated 1800 kva for one minute. *Apply R. L. Clark, Commissioner of Works, Municipality of Metropolitan Toronto, 20 Eglinton Ave., Toronto 12.*

FOR SALE

3 transformers, 10 kva, 25 cycle, 4600/2300, 575 volts; total weight including oil, 860 pounds; % impedence @ 75° C. = 3.70%; Serial numbers 202614, 202630, 202644. These transformers were constructed by the Ferranti Electric Limited, and are approximately six (6) years old. *Any further details may be obtained by contacting Mr. C. J. Halliday, Area Manager, Ontario Hydro, Box 520, Stoney Creek R.O.A. — Telephone — NOrman 2-8316.*

APPOINT DIRECTOR OF OPERATIONS

THE appointment of Robert H. Hillery as Director of Operations was announced recently. Mr. Hillery succeeds C. B. Sharpe, who is retiring shortly.

Born in Halifax (Yorkshire), Mr. Hillery received his early education in England and in Hamilton, Ont., joining Ontario Hydro's Operating Department in 1924. He later entered the University of Toronto, and, in 1931, graduated in electrical engineering. During World War II he served with the Royal Canadian Navy as a Lieutenant-Commander.

During his Hydro career, Mr. Hillery has occupied a number of responsible positions, including Assistant Superintendent of the Niagara System, Operations Engineer for the Toronto Region and, since February 1953, Administrative Assistant — Regions. He is a member of the



ROBERT H. HILLERY

Association of Professional Engineers of the Province of Ontario, and of the American Institute of Electrical Engineers.

NAMED ACTING PLANNING DIRECTOR

APPOINTMENT of Matthew Ward as Acting Director of Hydro's Planning Division, succeeding M. H. MacKenzie, was announced recently. Mr. MacKenzie has relinquished his position with the Commission to accept another senior post in the electrical utility field in Brazil. Until his present appointment, Mr. Ward served as System Planning Engineer, Planning Division, and he brings to his new post extensive experience gained during 19 years' service with the Commission.

Born in Lancashire, England, where he received his early education, Mr. Ward graduated from the University of Toronto in Electrical Engineering in 1931. Prior to joining Ontario Hydro in 1939, Mr. Ward held teaching posts in science and mathematics at the University of Toronto and at the Galt Collegiate and Vocational Institute. He is a member of the Association of Professional Engineers of Ontario, and of the American Institute of Electrical Engineers.



MATTHEW WARD

Hydro Commission Entertains Builders

Toronto Township Hydro-Electric Commission recently played host to representatives of the building trades at a dinner in Cooksville. Harry Foy, Manager of the Electric Service League of Ontario, was guest speaker, and presented an interesting illustrated address on adequate wiring, advocating that builders install 100-amp service at least in new homes and strongly recommending that this be raised to 200 amperes. Guests also displayed keen interest in the presentation of the Ontario Hydro film, "Power from the Ottawa."

Stratford Office Starts 5-day Week

Stratford Public Utility Commission office changed over from a 5½-day to a 5-day week operation on September 1, bringing the working hours of the staff into line with personnel at the city hall. The offices will be open from 8.30 to 5.00 p.m., from Monday to Friday, remaining closed on Saturday.

CLOCK WITH A "PUNCH"

(Continued from Page 17)

are responsible for the maintenance of the Commission's large floral clock at Queenston. Exemplifying the true "Hydro family" spirit, Manager J. R. McCullough arranged for an initial supply of alternanthera and santolina (the principal floral components of the Queenston clock) for the borders of the Dunnville "rival." These plants, from which cuttings will be taken and nurtured for next year's "face" will be replaced by small shrubs during the winter months. And the winter "greenery," provided by the Dunnville Horticultural Society, will have warm feet for John Dawson is planning to heat the soil electrically! ■

"PAY AS YOU GROW"

(Continued from Page 9)

He pointed out, however, that investigations had shown that this load was very desirable from the Hydro viewpoint as it was the only type of load by which kilowatthours could be stored (by means of the hot water). Furthermore it was the only load that could be interrupted without serious inconvenience to a customer. This water heating load represented approximately 11 per cent of the power used by utilities, he said.

Pointing out that the gas industry was giving extensive publicity to the quick recovery of hot water by natural gas, Mr. Murdock said Hydro's Research Division was making extensive tests relating to the quicker recovery of hot water by electricity, and Hydro research engineers were also investigating the feasibility of installing an additional heating element in tanks.

Mr. Dietrich said some new houses were designed for gas use, and in this respect the buyer did not have a choice, which would deprive customers of the advantages of electronic cooking — a definite possibility in the foreseeable future.

While neither the panel nor any delegate expressed resentment of natural gas competition, it was emphasized that the public, through their local utilities, had an investment of many millions of dollars, and active steps should be taken to protect this investment.

Following the report by Harry Thiess, Orillia, on the work of the Scholarship Committee, delegates approved a motion that the association's $200 scholarship be awarded to John Gowanlock, Flesherton.

Accident Prevention

Suggesting that utility executives and commissioners gladly assume the role of their "brother's keeper" in the realm of accident prevention, Roy Beith, Manager and Secretary-Treasurer of the Electrical Employers' Association, reminded his audience that 18 employees of Ontario utilities had sustained fatal injuries in the first eight months of 1957. Illustrating his points on training of foremen by means of dominoes, Mr. Beith urged that some essentials for foremen in handling utility work were: checking unsafe "short cuts"; anticipating job hazards, and including safety key points as part of work instructions; correcting and reinstructing men every time they were noted working in an unsafe manner, and emphasizing, at every opportunity, that the utility policy of not tolerating unsafe practises was his (the foreman's) policy.

Record Membership

Robert Butter, Secretary, reported that 85 municipalities were now members of the Georgian Bay Municipal Electric Association, which constituted the largest membership on record. This, he said, probably accounted for the large attendance at the two-day convention.

In welcoming the delegates Mayor Charles Parker, recalled that the formation of the Georgian Bay M.E.A. took place in Midland on the excursion boat, "Midland City." Greetings were extended on behalf of O.M.E.A. President Gordon W. Fuller, who was unable to be present owing to illness, by Bert Merson, Toronto, who also spoke on the Municipal Hydro-Electric and Insurance Plan. In a brief report on A.M.E.U. activities, Vice-President J. A. Williamson, Niagara Falls, deputising for President G. R. Davis, said the A.M.E.U. was endeavoring to spread its work into the regions, and was proceeding with the formation of regional branches of the A.M.E.U.

The program was concluded by a banquet in the Midland Drill Hall at which Lance Rumble, introduced by Oliver Smith, Chairman of the Midland Commission, was guest speaker. Mr. Rumble's entertaining and humorous address received warm applause and a vote of thanks extended by Alex Macintosh, Midland.

A slate of officers presented by C. J. Halliday, Chairman of the Nominating Committee, received unanimous approval, and the following will serve the association for the ensuing year: Past President, C. J. Halliday, Chesley; President, Lt.-Col. A. A. Kennedy, Owen Sound; 1st Vice-President, A. T. Smith, North Bay; 2nd Vice-President, John M. Low, Uxbridge; Secretary-Treasurer, Robert Butter, Owen Sound. Directors: V. A. Ellis, Collingwood; Harry Thiess, Orillia; Mayor Charles Parker, Midland; D. A. Evans, Bradford; Edwin C. Faelker, Hanover; William Booker, Meaford; Dr. J. E. Wilson, Barrie.—*by Frank C Wood.*

SUBMARINE SCHOOL

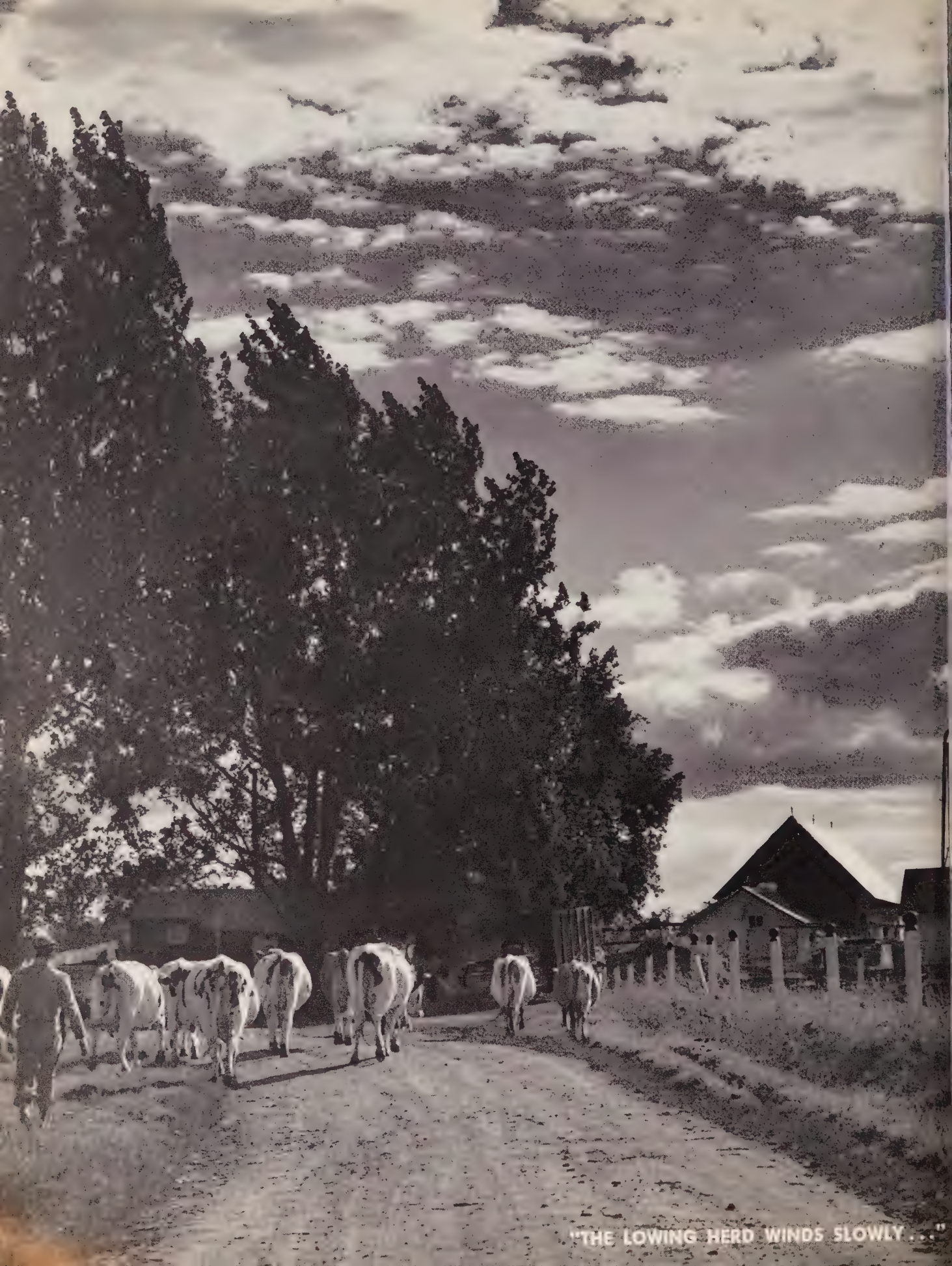
(Continued from Page 23)

direction when they enter dirty water. The student divers, working in the dark waters of Lake Timiskaming near Haileybury, found the underwater telephone an invaluable ally. Explaining his predicament to Lindsay, who was with landing craft flotillas in Sicily, southern France, Italy and Greece during World War II, the novice received directions from the veteran diver over the telephone, which usually put him back "on course." If Lindsay was unable to straighten him out, the student was hauled to the surface in an eddy of air bubbles.

These courses are designed mainly to emphasize the proper way to wear a diving suit, as well as to demonstrate the theory of diving as it is widely recognized that complete proficiency in this trade can only be achieved through long experience.

Hammering home the safety theme, Lindsay, who has wide experience in diving since joining the Hydro staff after his Second World War (1941-1945) stint with the R.C.N., invariably tells his pupils: "Ontario Hydro wants men who can go beneath the water and use their heads, as the Commission puts a man's life before everything else."

by Frank Wood.



"THE LOWING HERD WINDS SLOWLY . . ."



ONTARIO HYDRO *News*

NOVEMBER, 1957

ST. LAWRENCE "SCOURING"

ONTARIO HYDRO

PUBLISHED BY THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO
620 UNIVERSITY AVENUE, TORONTO

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NOVEMBER, 1957

VOLUME 44, NUMBER 11

SERVING RURAL ONTARIO

In the past three decades or more, one of the most significant phases of Ontario Hydro's operations has been the expansion of its rural system. With 94 per cent of all the farmers in the province having electrical facilities available to them, it is abundantly evident that electricity has had a dynamic effect upon Ontario's agricultural industry in the past quarter-century. Statistics indicate the unique fact that a total of slightly more than 192,000 farms were being operated in Ontario during 1932. Figures obtained during the 1956 agricultural census revealed that in the interim this total had shrunk to slightly more than 140,000 operating farms. Despite this fact, the value of the province's agricultural production jumped from approximately $248 million to a figure in excess of $1 billion during the same period. Some allowance must be made, of course, for the inflationary price trend. But it is apparent that the increased mechanization of farming operations, brought about largely by the growing availability of electricity in the rural sections of Ontario — Canada's leading agricultural province—has had an important influence on the output of our farms.

With the farmer's important contribution to the economy in mind, Ontario Hydro is broadening its density requirements for farm line extensions. On the new basis, the Commission will build two-thirds of a mile, along a public road, from existing lines to serve any soundly-established farm, instead of one-third of a mile as at present (see page 21). This important change will make available the comforts and material benefits of electricity to several hundred additional farms. The far-reaching implications of this step can be envisaged when it is realized that there are approximately 400 possible electrical applications on a modern farm today.

Another new policy to be inaugurated will affect the present hamlet rate structure. In a recent radio address, Hydro Chairman James S. Duncan announced that the Commission would shortly introduce into the present hamlet rate structure a third block of 500 kilowatt-hours a month at 1.1 cents a kilowatt-hour. This, with a 10 per cent discount for prompt payment, will make a net rate of one cent a kilowatt-hour. The change is designed to keep the rates of rural customers in high-density residential areas in closer parallel with rates for domestic customers within the municipalities.

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COVER PHOTOS

A casual appraisal might lead the reader to the belief that our front cover this month depicts sampans on China's Yangtze River. Actually they're dredges engaged in channel improvement in the St. Lawrence River near Chimney and Spencer Islands — the most westerly phase of work associated with the St. Lawrence Power Project.

Another phase of construction at the St. Lawrence Project is portrayed on our back cover. This 4½-cubic-yard electric shovel is engaged in excavation work on the upstream side of the Ontario Hydro powerhouse.



"KAM" CONSTRUCTION

In the rugged Thunder Bay District, some 30 miles north of Ontario's Lakehead, Hydro construction forces have converged on the twisting, picturesque Kaministikwia River. At Silver Falls they are driving forward with the task of harnessing the river's force by the building of a new, 45,500-kilowatt hydro-electric development. Plans for the Commission's Silver Falls project, to be completed in 1959, entail excavation of a 10,000 foot-long tunnel. The underground waterway will convey the water from Dog Lake, above the "Kam's" Silver Falls, down a steep hill to the new powerhouse nestling on the shore of Little Dog Lake, site of the temporary construction camp depicted above. The actual location of the tunnel is not visible as it will be excavated in an area to the right of this photograph. (For further details of Hydro's expansion program in the Northwestern Division, see "Northern Echoes," Page 14 this issue).

TO NEW HEIGHTS

By GARY SMITH

PROBABLY every "teen - ager" is familiar with a rather thoughtless and provoking telephone prank that runs something like this:

The jester dials the 'phone number of a resident on Isabelle Road and, when a voice answers, says, "Hello, madam. Is your home on Isabelle Road?"

"Yes it is," replies the unsuspecting housewife.

"Well," says the wit, smothering a giggle, "You'd better get it off—there's a truck coming."

Along the St. Lawrence River Valley where Ontario Hydro is completing its mammoth rehabilitation program, the story is said to have gone the rounds, but with a new twist. The punch line is different.

"You'd better get it off," comes the sally, "There's another house coming."

Whether or not the story has any truth, it now has virtually no application in the new communities of Iroquois, Ingleside and Long Sault or in a new subdivision at Morrisburg. The large-scale relocation of houses has been all but completed, and only occasionally is a small cottage or garage seen being eased along a road to a new site.

As work continues on the St. Lawrence Power Project, Ontario Hydro's rehabilitation staff has kept pace. The construction of schools, churches, shopping centres and public buildings is continuing in all the new communities, while the immense task of dismantling the old villages and clearing the land is pushed forward. But the virtual completion of house-moving operations marks the end of one of the most unique phases of the whole program, and heralds the beginning of the end of Hydro's rehabilitation program.

The Commission launched its program of relocating some 6,500 people along the wide St. Lawrence only after careful planning and preparation. Community planning experts studied the problem for almost a year and one-half before the townsites were selected, and Hydro's property, engineering and information staffs began work.

New Iroquois

In the early fall of 1955, the first house was lifted from its site in old Iroquois, and moved half a mile north to a prepared, concrete-block foundation in the new town. On September 25 this year, the last family vacated their home, and the old village virtually became a "ghost-town." Today, new Iroquois, which is in Matilda Township, 32 miles west of Cornwall, is almost finished. It contains 148 houses, which have been moved to the site from the old village, and 86 new homes. A shopping centre, containing facilities for 29 stores was officially opened in April, and two handsome new churches, Roman Catholic and Presbyterian, were dedicated last spring.

New public, separate and secondary schools were opened for classes in September this year. A United Church, an Anglican Church, a new town hall and various industrial buildings are still to be completed. Clearing of buildings, which could not be moved, has been pushed ahead rapidly in recent weeks. This phase of rehabilitation work in Iroquois was completed late in October this year.

Incorporating the former hamlets of Mille Roches and Moulinette, Long Sault (formerly New Town No. 2) is situated in Cornwall Township, eight miles west of the City of Cornwall. The spanking, 160-acre townsite can now boast of approximately four miles of hard-surfaced streets. Housemoving ended there recently when the 129th house was moved into the new community. An eight-store shopping centre, four churches and two schools are under construction.

Ingleside (known as New Town No. 1 in the early stages) is located in Osnabruck Township, 13 miles west of Cornwall, and includes the former villages of Wales, Dickinson's



RELOCATION OF ST. LAWRENCE

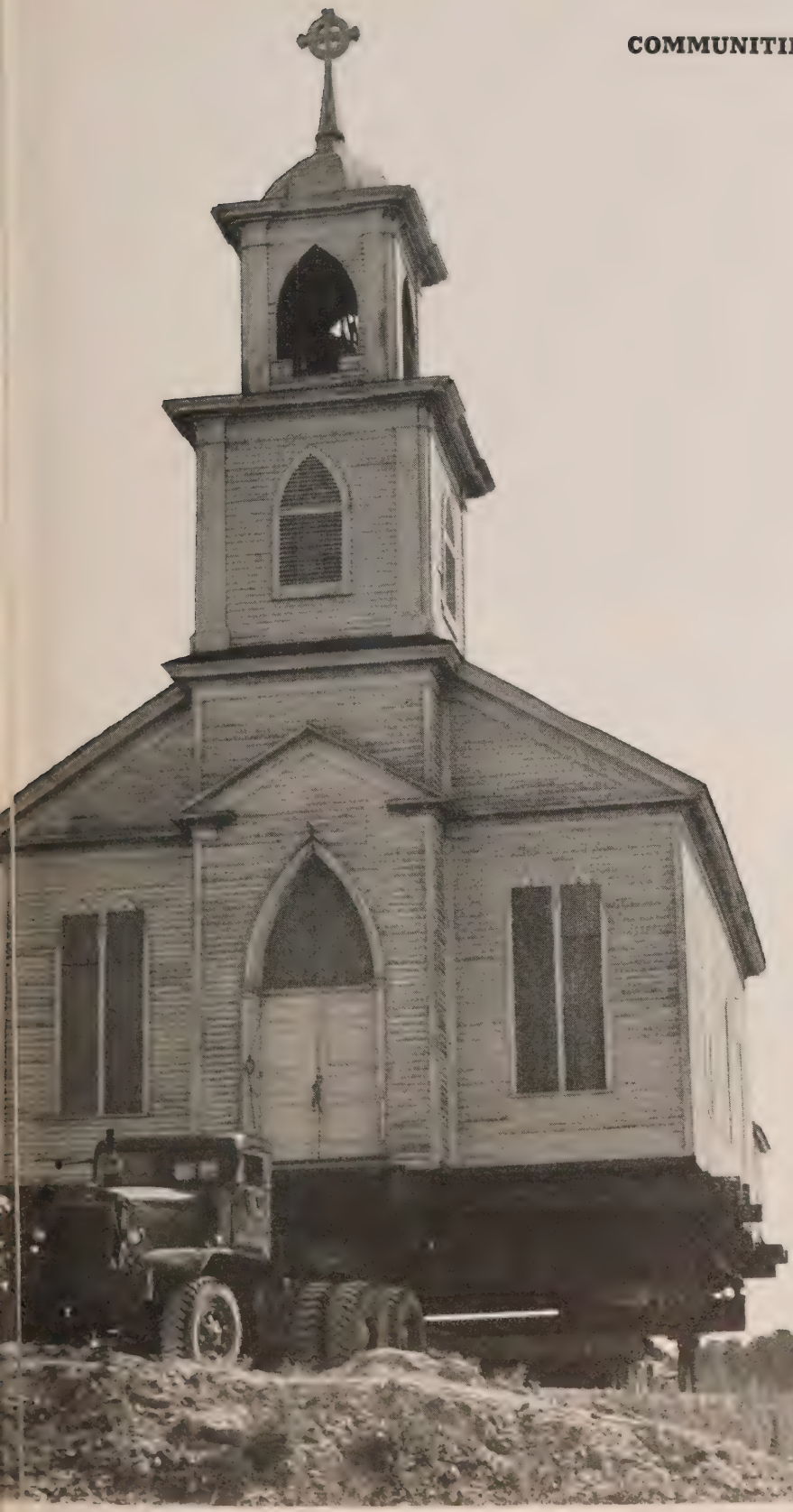
COMMUNITIES ENTERS FINAL STAGES

Landing, Farran's Point and Aultsville. Housemoving began in December last year, and by early October this year, with a total of 102 homes from the four old communities relocated on new sites in Ingleside, the housemoving phase was complete.

Like Iroquois, this site comprises some 200 acres, and has four miles of streets. An eight-store shopping centre, four churches and two schools are being built by the Commission.

Work is also proceeding at Morrisburg, the largest community affected by the rehabilitation program. Here the project involves the relocation of buildings formerly situated in the southern portion of the village in a new subdivision on the northeastern periphery of the community. In all, some 84 homes have been moved to this new section, which also includes a new commercial area. Morrisburg's relocation program involves moving almost the entire business section to a handsome shopping centre consisting of more than 40 stores — largest of the four centres, provided

(Continued on page 4)



◁ ONLY church to be moved from the St. Lawrence Power Project area, Moulinette's Anglican Christ Church was recently transported from its 127-year old site to take an honored place in Crysler Memorial Park.

for the new communities. Located centrally in relation to both the new and the old sections of the village the new centre is approaching completion.

In both Morrisburg and Iroquois, Hydro is also providing accommodation for a number of tenant families in the form of 96 self-contained living units — 84 of these are located in Morrisburg and 12 in Iroquois. In Morrisburg, 60 of the units are of the multi-row type, each with three bedrooms, complete kitchens and bathrooms and equipped with forced-air, oil furnaces. The 12 Iroquois units are similar in design and construction, while the remaining 24 Morrisburg units will be semi-detached in style, all equipped with forced-air heating and featuring two bedrooms in each unit.

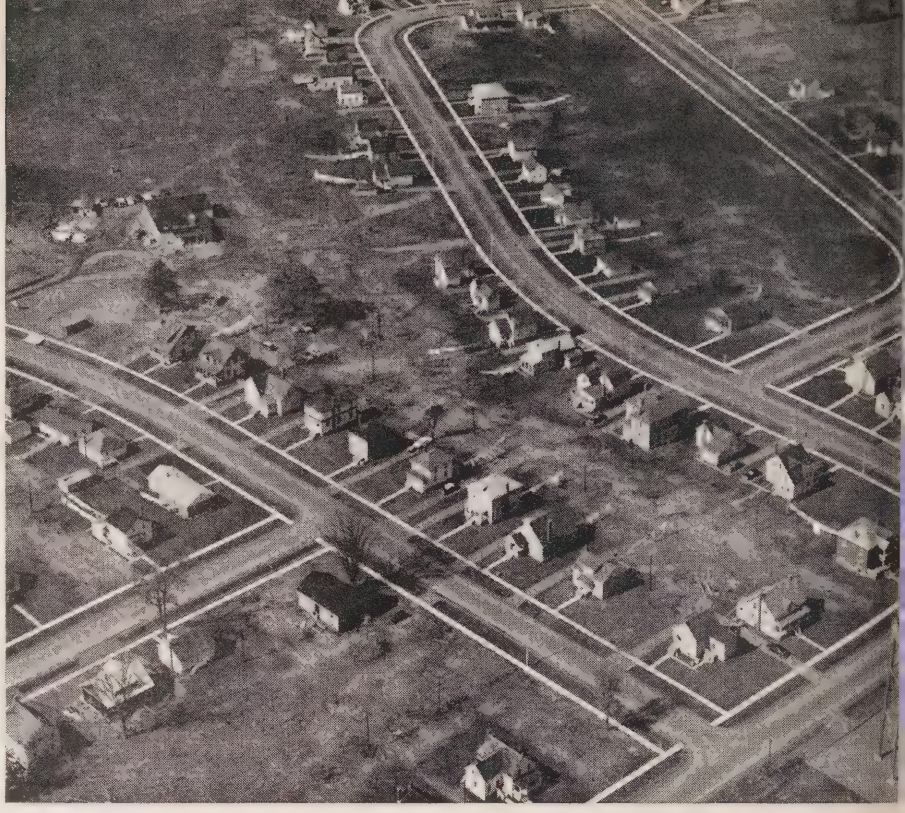
Higher Standard

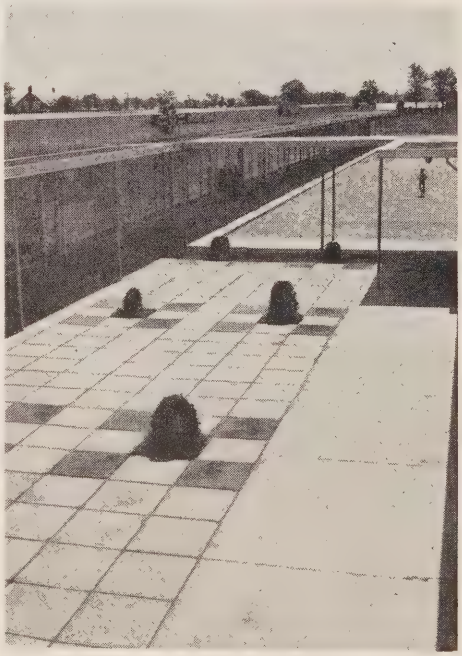
Plans for the relocated St. Lawrence Valley towns have included provision for better municipal services, and as Toronto's *Financial Post* recently phrased it, "for a generally higher standard of amenities". The latest type of water, sewage, electrical and other facilities have been incorporated in the plans for each new townsite.

The location of residential areas is designed to keep them as far removed as possible from main traffic arteries, although easily accessible to shopping areas and work centres. Children, for example, will be required to cross only one street, and, in most cases, may use park pathways enroute to and from school.

Contrary to the old custom of building or "stringing" stores and other commercial premises along either side of a main business street, the shopping centres in the four communities follow the modern pattern, incorporating convenient access from "through" thoroughfares, and ample parking facilities for shoppers travelling by car.

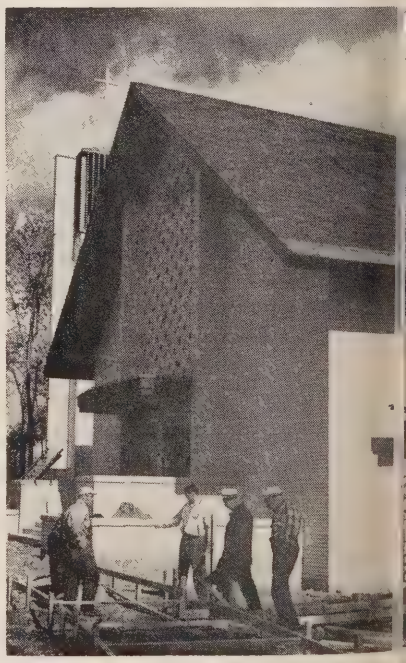
In fact, practically everything about the entire rehabilitation pro-





△

TYPICAL of the important changes created by Ontario Hydro is the paved mall, which provides access to Iroquois shopping centre.



△

MODERN ecclesiastical architecture is exem plified by Our Lady of Grace Roman Cathc lic Church, Ingleside, another new communit

MES from the former hamlets of Mille Roches
Moulinette have settled down comfortably along some four
s of streets in the new Long Sault community.

WITH the last of the villagers moved to the new townsite, old Iroquois has fallen silent. Only a few stores and homes were still standing when this view of the former business section (part of Highway No. 2) was recorded.





SOME 40 miles of main C.N.R. line have been relocated by Ontario Hydro, which involved the construction of five new stations, similar to this depot at Ingleside. Other stations have been built to serve the communities of Cornwall, Long Sault, Iroquois and Morrisburg.

gram seems to have a 20th Century atmosphere.

For example, the two giant housemoving machines used in moving homes and other buildings to their new sites are certainly the products of present-day mechanical ingenuity. These gargantuans — one capable of "lifts" up to 200 tons and the other up to 100 tons — are equipped with 200-horsepower diesel engines.

Before a house was moved, a steel frame was built under its sills and load-bearing sections. The U-shaped machine was backed into position, and cables attached at three strategically-located points. Electrically-operated winches then raised the building.

This three-point suspension system prevented twisting or jarring, and allowed the house to be raised or lowered at its normal level position.

By October this year, Ontario Hydro negotiators had completed 2,050 agreements for the purchase of property affected by the power project. This represents more than 90 per cent of the total land and buildings required.

Particularly significant is the fact that it has been necessary to refer only 20 of the 2,050 property transactions to the St. Lawrence Board of Review, the appeal body appointed by the Ontario Government to hear such cases.

Cottage Relocation

An interesting sidelight of the property acquisition program is the clearing of cottages and homes from several riverfront sections. The owners of 27 such cottages on Sheek Island, just southwest of Cornwall, have made agreements with the Commission to have their summer homes relocated in an area, which will become Island 17 when flooding occurs in 1958.

Similarly, another new island — Island 1 — to be formed in the

(Continued on page 28)



ATIKOKAN TOWNSHIP Hydro-Electric Commission, a recent addition to the Hydro "family," received congratulations on its decision to participate in the Municipal Pension and Insurance Plan. Members of the P. and I. Committee, left to right: Chairman R. S. Reynolds, Bert Merson, and G. R. Davis exchange greetings with Secretary-Treasurer M. A. Kelly, Chairman W. A. Ferguson and Reeve J. A. Johnston.

NORTHWESTERN CONFERENCE

FORT FRANCES PLAYS HOST TO O.M.E.A. DISTRICT 3 DELEGATES

NORTHWESTERN Ontario, like the State of Texas, is noted for its wide open spaces, but the distances between centres of population did nothing to restrict attendance or detract from the success of this year's O.M.E.A. District 3 Fall Conference at Fort Frances. Nor did the matter of miles deter a contingent of O.M.E.A., A.M.E.U. and Ontario Hydro representatives making the trip from the "south."

Fort Frances, on the shores of Rainy Lake just across the border from International Falls, Minnesota, is about as far west as it's possible to go in Ontario, and delegates from the more densely-populated sections of the province were at once impressed with the magnitude of the territory which District 3 embraces, and appreciative of the administration difficulties imposed by its geography. They had flown to the Lakehead from Toronto, and inspected Ontario Hydro's power project at Silver Falls, near the Lakehead, before embarking on the final, eight-hour stage of the journey to Fort Frances by rail.

The well-organized and comprehensive conference program was a tribute to the diligence and ingenuity of President George O'Neill and Secretary-Treasurer W. L. Wade, both of Nipigon, who worked out its many details with Fort Frances officials by remote control over the hundreds of miles that separate the two communities. Registration and an executive meeting preceded the luncheon, which launched the annual gathering. The guest speaker on this occasion was R. T. Smith, Port Director, Port Authority of Duluth, who dealt with a subject close to the hearts of many in the audience — the effects of the St. Lawrence Seaway on the economy of the Lake Superior region.

Mr. Smith referred to the Lakehead and Duluth trade areas as "a million square miles of opportunity," but he warned that benefits would only accrue in direct propor-

tion to the efforts put forth. The present facilities of many Lake Superior ports were not adequate to handle the transfer of cargo between water and land transportation economically, he said, pointing out that inefficient handling, and other adverse factors in the early years of the Seaway, could combine to discourage foreign shipping, and nullify the tremendous potential of the seaway as a stimulus to economic development.

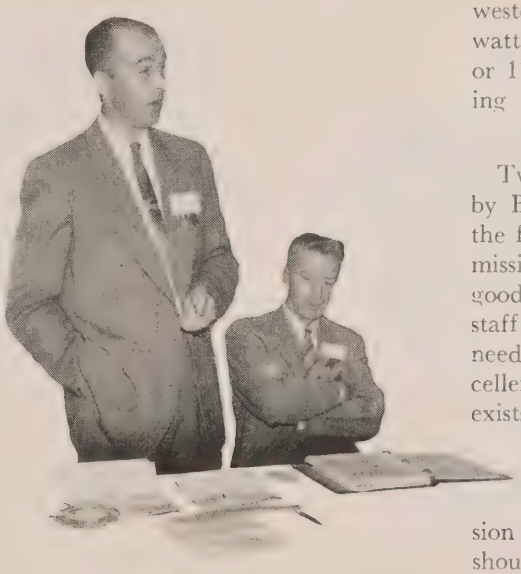
Hon. Ray Connell, M.P.P., Hydro's Second Vice-Chairman, brought greetings from the Commission and from the Ontario Government, while delegates were tendered a civic welcome by Mayor James M. Newman, Fort Frances. G. R. Davis, A.M.E.U. President, and Bert Merson, Executive Vice-President, O.M.E.A. spoke on behalf of their associations. Mr. Merson regretted that President Gordon Fuller had been prevented from attending by illness. He noted that every O.M.E.A. district association was represented, which, he said, "speaks well for our spirit of fraternity."

New Members Welcomed

In his presidential address prior to the first business session, Mr. O'Neill extended a special welcome to the delegates from Atikokan, near Steep Rock Lake, which had joined the Hydro family of municipalities since last year's conference at Port Arthur. Manifesting the "good neighbor" spirit, he added a word of encouragement for the Rainy River representatives present, expressing the hope that their municipality would soon follow Atikokan's example. Mr. O'Neill expressed regret that distance must inevitably limit the attendance of District 3 representatives at O.M.E.A. meetings held outside the northwestern section of the province, and he said he was greatly pleased to see so many district presidents among the delegates.

Any doubts that delegates might have had concerning Hydro progress in the northwestern section of the province were effectively dispelled by the report of K. N. Bodkin, Consumer Service Engineer of Hydro's Northwestern Region.

He referred to the interconnection with The Manitoba Hydro-Electric Board, effected October 28, 1956, as "an important date in the history of this region." An example of its value was the fact that, during the week ending September 1, it was possible to obtain 2,345,700 kilowatt-hours of surplus energy from Manitoba. "If it had not been for this tie," he continued, "this water would have been spilled in Manitoba." Hydro's development at Silver Falls, now under construction, and the recently-announced Lakehead thermal-electric station were other projcts which the speaker rated high on the list of Hydro advances in the northwest.



SECRETARY-TREASURER W. L. WADE, Nipigon Township, listens attentively as President George O'Neill welcomes the delegates.

Under the category of system expansion and improvement, Mr. Bodkin mentioned the 60-mile distribution line being built from Marathon to White River. He also reported that the Commission, in March this year, had completed two, 115,000-volt circuits extending from Kenora to Whitedog and Caribou Falls, designed initially to supply construction power to these hydro-electric projects. The new lines would, eventually, tie the two generating stations into the system. In the same month, he said, work was commenced on a 103-mile, 115-kv. transmission line between Kenora and Fort Frances, while in August an agreement was reached covering the supply of power to the Town of Rainy River.

Among the larger industrial concerns, which either became new direct customers of the Commission during the 12-month period in question, or greatly increased their power requirements, Mr. Bodkin mentioned the Kenora mill of the Ontario-Minnesota Pulp and Paper Company, Coldstream Copper Mines Limited and the Willroy and Geco mines in the Manitouwadge area. Dealing with load growth he said that the total primary demand for the month of August in the Northwestern Division was 375,00 kilowatts, an increase of 55,000 kilowatts or 17 per cent over the corresponding month in 1956.

Combined Knowledge

Two of the main points advanced by Bert Merson, in a discussion of the functions of a local Hydro commission, were the importance of good public relations both at the staff and managerial level, and the need for maintaining the present excellent state of co-operation, which exists between Ontario Hydro and the associated municipalities. He described the A.M.E.U. as a bond between the Commission and the O.M.E.A., which should be given every encouragement so that each individual system would benefit from the combined technical knowledge and experience of the other municipalities.

In reporting on the expanding activities of the A.M.E.U., President Davis noted that a total of 163 committee meetings had been held in the past year. He also stated that a President's Council, consisting of five past presidents had been formed. This, he said, would assure that the valuable experience of men, who had

(Continued on page 8)

held the highest post in the organization, would not be lost when their term of office was completed. The development of a province-wide standard of job classification and duties was among the suggestions he made for future consideration.

A disturbing report by Roy Beith, Manager, Electrical Employers Association, disclosed that 18 employees of electrical utilities in Ontario had met with fatal accidents during the first eight months of this year. He outlined a dynamic and ingenious two-day course in accident prevention, which his association had drawn up to help reduce this appalling toll, pointing out that courses would be held in central locations commencing later this year. The course is based on participation rather than lectures, and is designed to impress foremen with the importance of their function in the prevention of accidents.

Ontario Hydro Commissioner, Lt.-Col. A. A. Kennedy, commented on the high calibre of recent O.M.E.A. meetings he had attended. He supplemented the remarks of previous speakers with his own observations on safety, public relations and the advantages of maintaining a corps of highly-trained personnel as represented by the A.M.E.U. On a more technical plane, the delegates heard papers on "The Minimum Size of Domestic Service Installations"; and "Joint Use of Poles by Hydro-Electric and Telephone Utilities", presented by Harry Foy, Manager, Electric Service League, and R. B. Chandler, Port Arthur P.U.C., respectively.

In keeping with his promise to foresake 'shop talk" at the annual banquet, guest speaker W. Ross Strike, Ontario Hydro's First Vice-Chairman, delivered a thought-provoking analysis of the Canadian economy, stressing those factors, which he considered to be potentially dangerous. Among these he mentioned the glaring imbalance between Canadian imports and exports, the swelling tide of foreign investment capital, and the present emphasis on the export of raw and semi-processed materials as opposed to the development of a greater secondary manufacturing industry. Mr. Strike warned that science was now unleashing forces, which could present grave problems to a population poor in intellectual resources. He stressed that the greatest need



◁ J. M. HAMBLEY, Hydro's Assistant General Manager-Administration (left) and Commissioner Lt.-Col. A. A. Kennedy (extreme right) discuss the program with their Fort Frances hosts (from the left): William Fedorchuk, Bela Toth and Chairman Robert Cousineau.



WITH AN AUDIENCE comprising representatives of virtually all O.M.E.A. district associations, Dryden's Mayor J. L. Skillen (left centre) is congratulated on his election to the District 3 Presidency by Mayor James Newman, Fort Frances. From the left are: C. R. Buss, Thorold (District 5); Reeve George O'Neill, Nipigon Township (3); Mayor Skillen; George Glover, St. Marys (6); H. R. Henderson, Woodstock (7); Mayor Newman, Bert Merson, Toronto (4); J. G. Baldwin, Lindsay (1) and Lt.-Col. A. A. Kennedy, Owen Sound (2). R. C. Warwick, Blenheim, not present for this photograph, represented District 8. ▷

was for the creation of as large a mass as possible of well-trained minds able to think clearly and rationally to guide development in the proper direction.

Panel Discussion

A panel discussion led by Ray Pfaff, St. Catharines, featured the business session on Friday morning. Subjects ranging from the pros and cons of 12 kva distribution to tree trimming and corrosion in underground installations brought most of the delegates to the floor on one point or another. Other members of the panel included Fred York, Ottawa; Arthur Taber, Fort William; E. A. Washburn, Stratford; Harry Hyde, Toronto, and J. A. Williamson, Niagara Falls.

Two resolutions were passed during the conference. The first, submitted by the Fort William H.E.C., expressed opposition to the practice of assessing each cost municipality $3.50 per kilowatt as a contribution to Ontario Hydro's Stabilization and Contingency Reserve Fund for Northern Ontario Properties. The resolution pointed out that municipal electrical utilities were currently experiencing difficulty in borrowing funds for capital expansion; and that the $3.50 per kilowatt charge represented approximately 12.5 per cent of the cost of power in that area. The second resolution, submitted by the Nipigon Commission proposed the appointment of a permanent secretary-treasurer to administer the affairs of District No. 3 O.M.E.A.

Mayor J. L. Skillen, Dryden was elected president for 1957-58, while R. B. Chandler, Port Arthur, and W. A. Ferguson, Atikokan, were named First and Second Vice-Presidents, respectively. Elected directors were: Gordon Carson, Fort William; W. E. D'Arcy, Schreiber, and Dr. D. P. Jeffries, Sioux Lookout. The invitation to hold the 1958 annual meeting at Kenora was readily accepted.

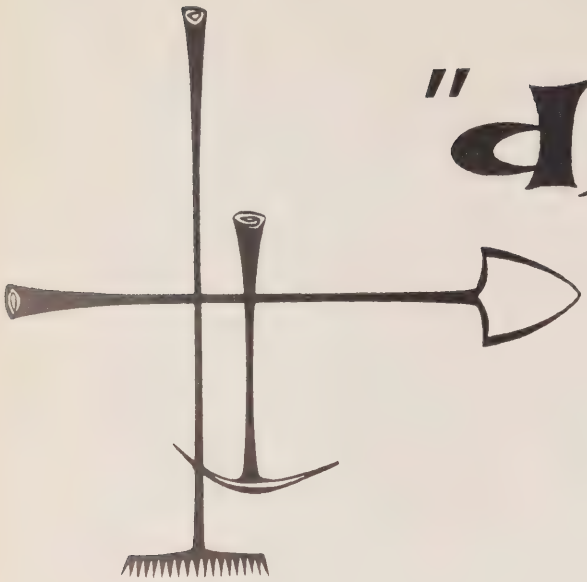
Guest speaker at the final luncheon was Donald Pettit, Toronto, who outlined some of the basic considerations involved in proper community planning. Climaxing their visit to Fort Frances many of the delegates enjoyed a boat trip on Rainy Lake arranged by the Ontario-Minnesota Pulp and Paper Company. — *by Don Wright.*



A.M.E.U. Past President E. A. Washburn, Stratford (centre), and O.M.E.A. Secretary-Treasurer D. P. Cliff, Ontario Hydro Commissioner (right), celebrated their birthdays jointly during the District 3 gathering. Hydro's First Vice-Chairman, W. Ross Strike, referees the cutting of the lighted cake.



JUDGING by their expressions, members of the new executive look forward with pleasure to serving as District 3 officers. Front row (left to right): W. A. Ferguson, Atikokan Township; Mayor J. L. Skillen, Dryden, President; R. B. Chandler, Port Arthur; Back Row — Reeve W. E. D'Arcy, Schreiber Township; Reeve George O'Neill, W. L. Wade, Nipigon Township, and Gordon Carson, Fort William.



"dig" those

by GARY SMITH

DEPENDING upon plot requirements, the modern motion picture portrays the early North American Indian as either a noble redman, with all the finest instincts of a mediaeval knight, or a bloodthirsty savage, who rushed headlong about the country scalping innocent settlers.

If the early Indian is thus misrepresented — and it appears certain he is — the lion's share of the blame might go to James Fenimore Cooper, who was probably the first writer to see value in the Indian as a fictional character. Cooper painted his Mohicans as courageous men, who would fight to the death for a principle, but often inferred in his novels that other tribes had less integrity, and would stoop to almost any foul deed.

Despite the thrilling stories of writers like Cooper, what early Canadian history tells us or what science has been able to piece together — too little is still known about the first Canadians.

It is believed, for example, that a people ancestral to the modern Indian roved North America several thousand years before Jacques Cartier first set foot in the territory now known as the Canadian Maritimes. Our present knowledge of the Indian people is based primarily on what we have learned of them since the white man came to these shores.

Today, archaeology — defined as the study of antiquities — is slowly but surely bringing to light new information about these early people. Scientists, digging into the earth in distant parts of the province, have succeeded in uncovering Indian relics and artifacts, which are bound to add to a steadily growing store of information.

In at least two instances during the past summer, Ontario Hydro aided directly in furthering this study. In the dense bush country of northwestern Ontario near its Whitedog Falls project, the Commission provided assistance to an expedition sponsored by the Royal Ontario Museum, Toronto, to uncover new information on the Woodlands Indians of 250 to 300 years ago.

At the opposite end of the province, meanwhile, Ontario Hydro employees at the St. Lawrence Power Project near Cornwall were donating their spare time to the Ault Park Expedition, aimed at recovering relics of an early people dating back to 1,500 B.C. or earlier.

Hydro Aid

The northern Ontario expedition was equally interesting although the subject of its study is far more recent. The term Woodlands Indians is used to group the Assiniboin tribe, an off-shoot of the Sioux, as well as the Ojibway and the Cree — or more generally, tribes who are thought to have frequented the forests of northern Ontario prior to the arrival of the white man.

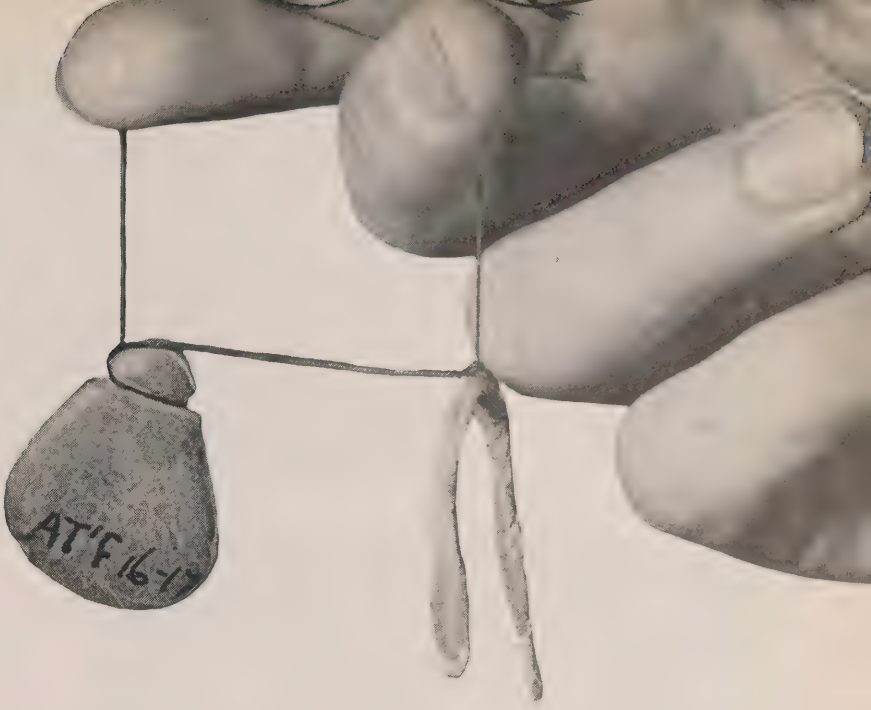
Headed by Walter Kenyon, Assistant Curator of the Department of Ethnology, Royal Ontario Museum, this party also included Mrs. Kenyon, a Toronto social worker, and George Swan, an Indian guide employed by Hydro. Mr. Swan's services were made available to the Kenyons to operate their boat, and assist with the digging.

Arriving early in July, the trio, subsequently chose a site near the shore of Swan Lake, a few miles from Whitedog Falls, for intensive investigation, and established a camp at that point. For approximately one month, Mr. and Mrs. Kenyon, assisted by George Swan, carefully dug into the clay of this area before returning to Toronto early in September.

Forest Dwellers

One theory, which may receive support from Mr. Kenyon's findings in the north, is that tribes like the

relics



TWO of the most interesting artifacts unearthed at Ault Park on Sheek Island in the St. Lawrence River were this red slate object — believed to be a child's ornament — and a copper fish hook, thought to have been brought from the central United States.

Assiniboin, now identified with the plains of western Canada, were originally forest dwellers, who were pushed westward as the white man gradually moved west across Canada.

"Europeans traded guns to the first people they encountered in the new world," Mr. Kenyon explains, "that is, to those bands along the Atlantic seaboard and the St. Lawrence River. This weapon enabled the Ojibway to move farther west in their search for furs, pushing the Assiniboin with their inferior native weapons out on to the plains.

'We hope to learn eventually where these different tribes originally came from and the details of their subsequent movements as the influence of the Europeans came to be felt," he told *Ontario Hydro News* recently.

Mr. Kenyon dates the relics his party turned up near Whitedog at from 250 to 300 years old. This would be roughly during the early 1700's. The findings show that even at that early date, goods obtained from white traders were in use by these tribes.

Among the pottery fragments, flint arrowheads and bits of colored stone found near Swan Lake are some rusted bits of iron, including a damaged but identifiable iron axe-head. There is also a large spear point of copper, so shaped as to suggest that it, too, was a trade item rather than a piece of native copper traded in by other tribes.

Hard Rock Scarce

Tiny bits of such stone as obsidian, quartz and chalcedony, carefully chipped into points, suggest that despite the availability of some traders' goods, the stone culture still predominated. The sizes of these bits of stone indicate also that good stone for weapons and tools was scarce, and that a fair-sized piece of hard rock was worth money in trading with neighboring Indians.

Lastly, says Mr. Kenyon, the summer's expedition suggests several things about the diet of the Woodlands Indians, and, subsequently, something about their physical characteristics. Basically, these people were meat eaters. The Toronto ethnologist says large numbers of bones from small animals and birds — probably ducks — indicates they dined frequently on flesh. Their diet, he adds, was probably varied with wild rice, great quantities of which grow in the marshy areas around Swan Lake.

What does the diet factor indicate about their physical characteristics? For one thing, a diet of meat tends to make people grow taller. The chewing action required to ingest meat also has something to do with the shape of the jawbones and consequently the size and shape of the head. Mr. Kenyon suggests that the people he is now studying were tall and well-proportioned with long faces.

Sponsored Jointly

The Ault Park Expedition, named for the site of the dig at a public park on Sheek Island in the International Rapids Section of the St. Lawrence River, was headed by Professor J. Norman Emerson, Supervisor of Archaeological Studies at the University of Toronto's Department of Anthropology. The dig here was sponsored jointly by the National Museum of Canada and the University of Toronto.

Digging at the site was begun in the summer of 1956, and continued during the past summer with a possibility, Professor Emerson says, that the expedition will return for a short time next year. Members of the party included a number of senior university students, high school students and interested persons, who spent their vacation at the camp helping the digging pro-

(Continued on page 12)



HYDRO guide and boatman George Swan, who assisted in the archaeological explorations in the Whitedog-Caribou Falls area of northwestern Ontario shows Walter Kenyon (left) a relic which he found during the Swan Lake "dig."



WALTER KENYON, who led the Swan Lake exploration, grew a luxuriant beard while on "location." Here he examines an iron axe-head, one of the major finds.



USING an Ontario Hydro bulldozer, members of the Ault Park "dig", left to right: Paul Sweetman, National Museum, Ottawa; Prof. J. N. Emerson, University of Toronto; Operator Medard Cyr and Lyall Manson, Cornwall, turn up stones and charcoal where Indians cooked food 3,000 years ago.

gram. The camp strength varied between 25 to 50 during the past summer.

Members of the expedition lived in tents during the summer, taking their meals in a frame pavilion where soft drinks and sandwiches were once dispensed to visitors. Professor Emerson conducted operations from a field office set up in an old summer cottage nearby.

Site To Disappear

The Ault Park Expedition is regarded by its sponsors with special urgency because the site will not be available much longer. Part of Sheek Island will disappear beneath the waters of the new forebay of the St. Lawrence Power Project when first flooding for the power development occurs in the late summer of 1958. Professor Emerson has, therefore, approached the problem with the aim of recovering as much as possible before this occurs.

Subject of the Ault Park study is a race of people known as the Point Peninsula people, who existed some 3,500 years ago. Believed to be the ancestors of the modern Iroquois, they roamed much of eastern North America, after having migrated across the continent during preceding centuries.

Cremation burials have been discovered in the sandy soil overlooking the Long Sault Rapids, and the graves contained samples of stone tools, weapons and pottery. It is believed the Point Peninsulas came to the spot to bury their dead, camping at the site temporarily, while carrying out their primitive burial rites.

For Archaeologists Emerson and Kenyon, the long task of sorting, identifying, and typing their summer's findings is still ahead. Both work from offices in the Royal Ontario Museum where, this winter, University of Toronto students will doubtless have some interesting new things to learn from Professor Emerson, and where visitors, even now, are having the opportunity of seeing samples of the Ault Park collection.

HYDRO HELIPORT



THIS HELICOPTER, which patrols transmission lines in Hydro's Northeastern Region gets the "once-over" from Manager H. R. Graham (left) and A. W. Batty, Head Office, Toronto.

Unique in Ontario Hydro annals, the new service building of North Bay Area includes a "garage" for two of the Commission's line patrol helicopters.

Space in the new structure is provided for area stores, general offices, regional truck garage, communications equipment repair shops, forestry equipment stores, a lunchroom and a general work area.

The most unique feature of the concrete-block structure is, however, its heliport for storage of two helicopters and the facilities for servicing and repair of the line patrol aircraft.

Storage space has been made available for helicopters at the Kirkland Lake Area service centre, while plans are also afoot to provide overnight space in new area service buildings, now in the design stage, to be built at Dryden and Kenora.

But the North Bay building enjoys the distinction of being the first Hydro service centre designed to both store and repair Hydro's Northeastern Region line patrol helicopters and visiting Commission aircraft of the same type.

The building also provides facilities for serving 6,762 rural and municipal customers, including Mattawa and Powassan. It also serves customers in 14 organized and 37 unorganized townships within the North Bay Area, excepting West Ferris Township.

The Commission sells power to the City of North Bay and the Township of West Ferris, as well as to three direct customers and R.C.-A.F. Station, North Bay (Cornell Heights), but in these cases the lines and equipment are owned and operated by the customers.

The area covers some 3,300 square miles, extending from South River on the south to Marten River on the north, and from Mattawa on the east to Crystal Falls on the west. It includes more than 910 miles of rural, low tension and high tension line.

The staff of the new centre work in the line maintenance, forestry and communications departments. The forestry crew trims approximately 9,500 trees and clears 600 acres of right-of-way annually. The present staff will perform an estimated 127,950 manhours of work yearly, and is proud of its record of 730 days without time lost due to accidents. A total of 15 area trucks, some of them equipped with radio facilities, along with several regional vehicles, operate from, and are maintained at the centre. C. E. Dillon is the Manager of the North Bay Area while Foreman Kenneth A. Dent is in charge of line and forestry personnel operating from the building. ■

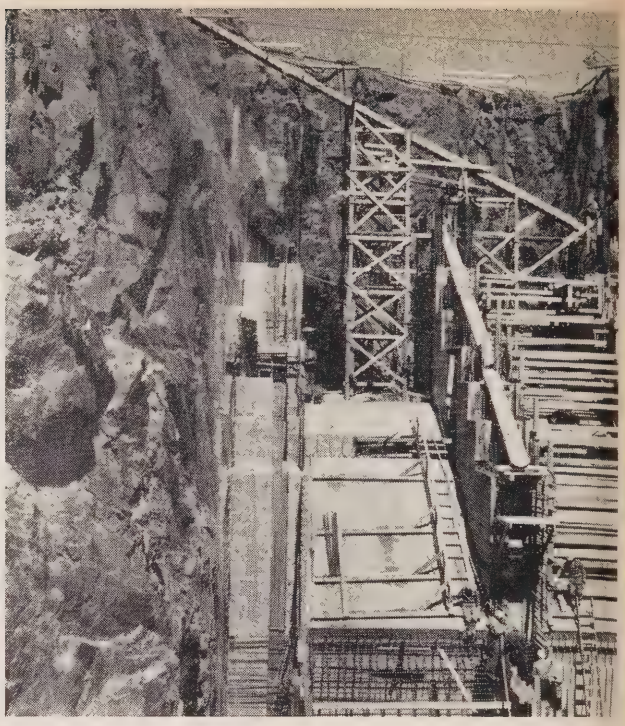
HELICOPTERS ARE STORED AND SERVICED IN THE TWO-STOREY SECTION (LEFT) OF HYDRO'S NORTH BAY AREA SERVICE CENTRE.



CONCRETE POURS down a chute for the headworks piers of a new unit being installed at Hydro's Cameron Falls Generating Station on the Nipigon River. Wire mesh curtain protects workers from rock falls.

▽





northern



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DURING the past year installation of an additional unit has been going forward at Manitou Falls. With the fifth unit in service next year, Hydro's new English River station will have a total capacity of 65,700 kw.

ONTARIO'S north wood literally ring with the sound of Hydro construction activities these days. Striving to keep pace with the almost phenomenal electrical requirements of the flourishing northwestern section of the province, the Commission has accelerated its program of hydro-electric development in the past few years. Today six separate projects are actively under construction, while plans were recently announced for construction of a new Lakehead thermal-electric generating station, scheduled for service in 1961. The hydro-electric projects include: new plants at Caribou Falls on the English River (67,500 kilowatts); Whitedog Falls on the Winnipeg River (54,000 kw.); and Silver Falls (see Page 1) on the Kaministikwia River 45,500 kw); and extensions to the Manitou Falls plant on the English River, as well as Cameron Falls and Alexander Generating Stations on the Nipigon River.

Graphically portraying this panorama of development, the accompanying selection of photographs depicts progress during the past few months in this important program, destined to augment Commission resources in its Northwestern Division by 209,00 kw. by 1959, followed by an additional 100,000 kw. in 1961 from the Lakehead thermal-electric plant.



SKEG ISLANDS floated down the Root River recently
r Ontario Hydro construction forces diverted the
er flow from Lake St. Joseph into the English River
em (see *Ontario Hydro News*, October, 1957, P. 1).



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FIRST WATER from Lake St. Joseph pours through a 10,000-foot-long channel connecting the lake and the Root River. New waterway was completed during September this year.

OTHER VIEW of construction at Cameron Falls,
cting concrete-placing for the headworks piers
intake structure of the new, 19,100-kw. unit.

echoes



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AN INCREASED FLOW of some 2,800 cubic feet a second means an augmented output from three Ontario Hydro English River plants, including Caribou Falls, where construction of the main dam and powerhouse is advancing rapidly.



◁ BUILDING is also progressing favorably at the Whitedog Falls project on the Winnipeg River. A steel, Bailey Bridge structure supports the breastwall forms of the first unit scheduled for service in 1958.

SILVER ANNIVERSARY

A.M.E.U. Western Conference Draws Record Attendance

MARKING its silver anniversary, the Western Ontario Division, A.M.E.U. Accounting and Office Administration Committee recently celebrated the occasion by sponsoring the most successful annual conference in its 25-year history.

With a record attendance of some 252 delegates, this year's two-day gathering was held at London.

A varied program covered such aspects of utility administration as customer relations, collection practices and control of miscellaneous items from the accounting viewpoint. An open forum provided an opportunity for discussion and an exchange of ideas on numerous subjects relating to the operation of Hydro utilities.

Chairman David N. Durward, Galt, in his address of welcome, suggested that the conference theme "should be public relations and our method of building up a better spirit of understanding between our customers and ourselves."

The growing awareness of the importance of public relations made itself manifest during the discussion of most items on the agenda. Even the luncheon address by Hon. Ray Connell, Ontario Hydro's 2nd Vice-Chaiman, concerned itself —among other matters—with this vital subject.

Urging that good customer relations should be the daily goal of utility representatives, Mr. Connell said the basis of good public relations could be found in the golden rule of putting oneself in the customer's place. "You" he told his hearers "would want to know the reasons behind an act or a decision; you would want the utility employees to make an honest effort, and really react to your wishes or complaints; you would want them to keep their promises, and you would not like to be referred back and forth from one person to another."

Continuing, he pointed out that utility staffs could not practice good customer relations unless they felt and demonstrated a sincere friendliness toward people.

"You can all think of examples of the wrong way to handle customers. There's the delay in settling disputed accounts, power cutoffs without notice, lack of explanation pertaining to rate increases, and an abrupt, unco-operative attitude towards customers in telephone conversations."

It was quite easy to provide the "little extras" in service, which earn so much good-will and prestige for the organization. The simple willingness to explain a bill to a customer who had doubts about it, the sympathetic handling of a complaint, sending a pleasant letter to a customer instead of a curt, cold one — all these things would go far toward inspiring confidence in Hydro, the speaker asserted.

Courteous Attitude

"If you put some human warmth into your job you will get satisfaction out of it. If you develop a never-failing courteous attitude you will benefit personally, for courtesy means control of one's emotions, and anyone who has that will be on top of his difficulties rather than at their mercy," he said.

"The total result will be good for all—for you, for the customer and for Hydro," Mr. Connell declared in concluding his remarks.

Customer Relations Panel

Delegates followed with keen interest a discussion on customer relations by a panel comprising Miss Norma Crane, Niagara Falls; Grant Stickney, Stratford; William G. Woods, Waterloo, and James Gow, Guelph, with Mr. Durward as moderator.

An appraisal by panel members of the booklet "We're Here to Serve You" issued by the Galt Public Utilities Commission, revealed unanimous approval of the publication (*Ontario Hydro News*, March, 1957).

Satisfaction with the booklet was also indicated from the floor, but one delegate suggested that flat rate water heaters might be mentioned, while an explanation of the method of computing Hydro bills would also be worthwhile. Another delegate expressed the view that a survey of customers to whom such booklets were distributed be taken after three months to ascertain their reaction.

Mr. Durward advised utilities contemplating the issue of similar brochures to contact Ontario Hydro for advice, as the Commission had issued a booklet to its



DURING A "coffee break" (from left) Frank Gwinn, Toronto, Charles B. Blum and Harry Mann, Hanover, were "talking shop."



FRANK WILKINSON, London, program committee chairman, outlines conference agenda.



REV. H. S. RODNEY, St. Thomas, was a featured speaker at this year's conference banquet.

rural customers. Mr. Durward also recommended that delegates make a point of seeing an excellent Ontario Hydro film, "A Day in the Life of a Meter Reader." Mr. Durward was replying to a question about programs for training employees to handle inquiries.

Ladies Active

Turning to collection practises, a panel comprising Miss Anne M. Early, Ridgetown; Miss Helen Laurie, Sarnia; Don Hines, Tilbury; J. G. Abbott, Windsor; Fred Thompson, Hamilton, with J. F. Cook, Windsor, as moderator, outlined several important aspects of this phase of utility operations.

Miss Early declared that Ridgetown P.U.C. had no uncollectable accounts, asserting: "if you tolerate arrears you are going to have them."

An excellent paper on collections by Miss Laurie, and a short address by Mrs. L. M. Gibson, Lucan, on peg-board billing, provided an indication of the trend towards increasing participation by ladies in the committee's activities.

Best or Last

Rev. Harry S. Rodney, St. Thomas, guest speaker at the ban-

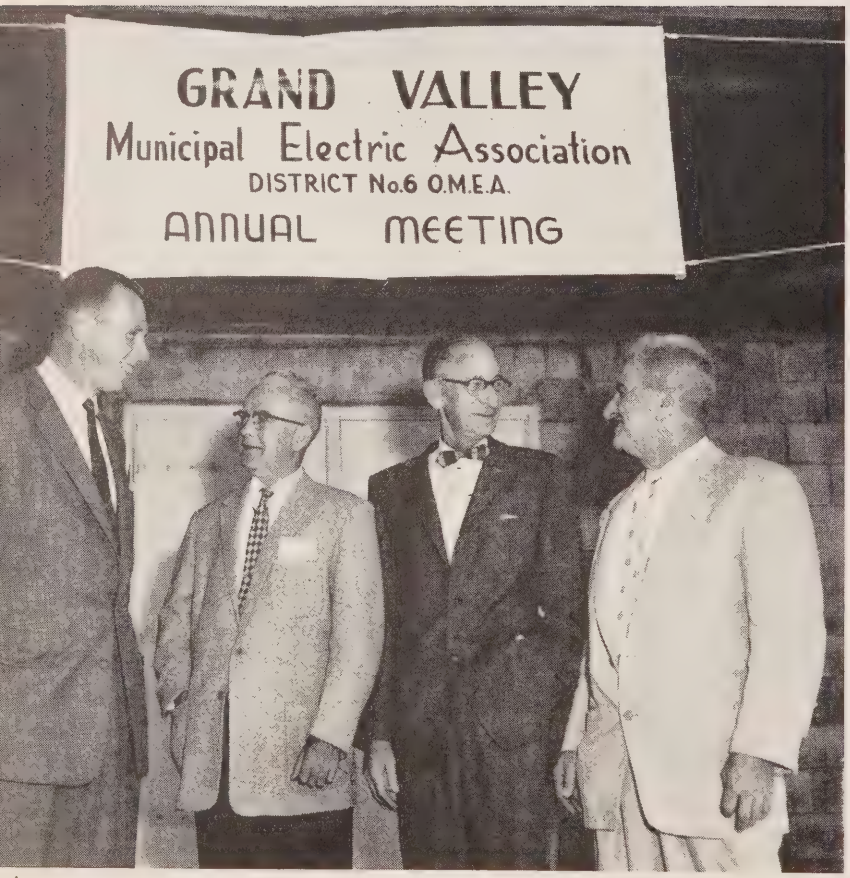
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THREE DELEGATES (left to right): Miss W. M. Pietch, Miss J. A. Gammon (seated), Kitchener, and V. F. Atkins, Toronto Township, watch as Walter J. Laing, sales representative, demonstrates billing machine operation.

Stone Town Plays Host

ST. MARYS P.U.C. ENTERTAINS GRAND VALLEY M.E.A. DELEGATES



ASSISTING in arrangements for the successful district convention, members of this group (left to right): St. Marys P.U.C. Commissioners Eric Taylor and Mayor James Timms, with Harry Dobson and J. H. Aldis, former commissioners, were on hand to welcome delegates.

DISCUSSIONS ranging from administration policies to labor relations highlighted this year's annual convention of the Grand Valley Municipal Electric Association (O.M.E.A. District 6).

St. Marys — the "Stone Town" — played host to delegates, who voiced unanimous regret at the absence of President George Glover. The Grand Valley President suffered a heart attack while returning from Fort Frances where he represented District 6 at this year's Thunder Bay (District 3) M.E.A. Convention.

First Vice-President Howard M. Scheifele, Waterloo, in substituting for Mr. Glover, proved himself a capable chairman, as he efficiently guided discussions arising during the business session.

The attendance of four key Ontario Hydro representatives — W. Ross Strike, First Vice-Chairman; Hon. Ray Connell, Second Vice-Chairman, as well as Commissioners Lt.-Col. A. A. Kennedy and D. P. Cliff — signified the Commission's awareness of the importance of O. M. E. A. district conventions such as this. During a brief luncheon address, Mr. Connell



BASKING in the warm autumn sunshine, four delegates (left to right): Gerald Near, St. Marys; A. E. MacIntyre, Stratford; W. J. Bishop, Guelph, and Leslie Bowman, New Hamburg, enjoy pre-session discussion.

A PLEASANT HIGHLIGHT was the presentation of roses to Mrs. H. M. Scheifele, Waterloo, for the lady delegates at the meeting. Mr. Scheifele (right) presided owing to the illness of President George H. Glover.



said that he had been attempting to become better acquainted with the people of the O.M.E.A. and A.M.E.U. It was a source of inspiration to realize that Hydro operations in the municipalities of Ontario were being administered by such a large and capable group of people.

Packed into a tightly-knit agenda were addresses on "Safety" by Roy Beith, Manager and Secretary-Treasurer, Electrical Employers' Association; "The Functions of a Local Hydro Commission" by Bert Merson, Executive Vice-President — deputizing for O.M.E.A. President Gordon H. Fuller; "Administration Policies" by Mr. Strike; "Labor Relations" by W. B. Elliott, St. Catharines; "Probable Effects of Gas Competition" by Dr. V. S. Wilson, Etobicoke Township; a display of material emphasizing the advantages of electrical living by T. E. Dietrich, Information Division, Ontario Hydro; "Utility promotion of National Electrical Week" by Manager Harry Foy, Electric Service League of Ontario, as well as resolutions presented by T. J. Moffat, Listowel.

With the concurrence of the District 6 executive, delegates approved a motion urging that permission be obtained from Ontario Hydro for local utilities to co-operate with municipal councils in the erection and dismantling of Christmas lighting displays as a public service — the cost of the displays and the power used to be charged against the municipality. Another resolution, which received endorsement, advocated that rate structures be amended to permit utilities to introduce a 25-per cent reduction for lighting systems installed at certain municipally-owned properties used for athletic or recreational purposes. These properties, the motion pointed out, were usually illuminated during periods of off-peak demand. Delegates also approved another motion that O.M.E.A. district associations participate financially in advertising campaigns inaugurated by Ontario Hydro. A further resolution, urging that a survey of member utilities be conducted to ascertain reaction to a proposed labor relations program, also received approval of the Grand Valley members.

The utility representatives followed with keen interest an address by O.M.E.A. District 5 President W. B. Elliott, who dealt at considerable length with a labor relations survey inaugurated by the District 5 group.

Quoting from a recent issue of a Canadian labor periodical, Mr. Elliott referred specifically to rising rates of pay for linemen in Vancouver.

"The idea of such wage rates still considered excessive by Ontario standards — may well spread eastward like Asiatic flu," the speaker smilingly warned.

The St. Catharines Commission, he continued, although serving a highly industrialized and unionized area, had been remarkably free of labor troubles. He attributed this happy condition to its affiliation, in common with several other St. Catharines' and district industries, with a

(Continued on page 20)

local industrial relations institute. This body provided all of its members with complete information on working conditions, welfare plans, wages and salaries and personnel policies in the district. With such data, a member firm, when bargaining with its employees, had facts which clearly indicated whether it was paying comparable rates. Thus, the St. Catharines Commission was able to effect amicable agreements with its employees with complete assurance that the rates paid were on a par with those for similar jobs within the city. However, it had no up-to-date information to enable it to determine, with similar assurance, whether its wage rates and other benefits compared favorably with those of other utilities in the immediate area or district, Mr. Elliott pointed out.



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W. B. ELLIOTT, St. Catharines, President, O.M.E.A. District 5, outlined details of a proposed utility labor relations program.

To meet this situation, he said, District 5 directors had been authorized to conduct a survey of member municipalities relating to the inauguration of a labor relations program. Such a program would not provide its full value until it "expands to other districts and finally encompasses the whole O.M.E.A.," he said.

Furthermore this program, if undertaken, would not be the final answer to the question of proper remuneration for employees. It would, however, convince employees that utilities were endeavoring, from the most accurate data available, to provide adequate wages without placing undue burdens on the public.

"If such confidence is established, progress in labor relations will have gone far beyond the half-way mark" Mr. Elliott claimed.

Public Relations

On the kindred subject of public relations, Hydro's First Vice-Chairman, Mr. Strike, lauded the action of utility employees in providing courteous answers to customers' questions.

The speaker also paid tribute to the A.M.E.U., which, he said, was making a tremendous contribution to the Hydro organization. Local commissioners should, therefore, encourage their staffs to give every possible support and assistance to the A.M.E.U.

Discussing safety, he urged that utilities place special emphasis on this subject, and recommended a revival of the practice of sending their municipal linemen to a training school.

Other subjects touched upon by Mr. Strike included the importance of budgeting and methods of meeting competition, while in regard to adequate wiring he warned "this will be our Achilles' heel if we are not careful."

Mr. Foy drew attention to this problem with the statement that present-day homes seemed to have every other modern convenience, but their wiring, in many cases, was 30 years out of date. Urging the vital importance of adequate wiring, he named with approval those municipalities, which now insist on 100-ampere services in private residences.

Head table guests, who made brief after dinner addresses at Mr. Scheifel's request, included Commissioners Kennedy and Cliff, Mr. Merson, Omer Russell, Manager of Hydro's West Central Region, and Gordon Stacey, Guelph. Mr. Stacey provided the welcome information that no increase in A.M.E.U. dues was proposed for 1958.

1958 Executive

Delegates unanimously approved the recommendation of Alex G. Sparling, Nomination Committee Chairman, that the same slate of officials be elected for another term, with the exception of J. E. Huckins and Oliver J. Little, who had requested that they be relieved of executive duties.

The following will, therefore, continue to serve the Grand Valley M.E.A.: George H. Glover, President; H. E. Dickinson, Secretary-Treasurer, both of St. Marys; H. O. Hawke, Galt, Hon. Vice-President; H. M. Scheifele, Waterloo, 1st Vice-President; T. J. Moffat, Listowel, 2nd Vice-President. Directors: A. R. Moore, Stratford; Dr. H. A. Mutton, Mitchell, J. F. Edwards, M.P.P., Palmerston; A. J. Girdwood, Guelph; R. G. Charleton, Hespeler, and D. F. Kissner, Kitchener, and two to be appointed. The newly-elected executive will consider an invitation to hold the 1958 convention at Palmerston. — *(by Frank C. Wood).*



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ROY BEITH, Manager, Electrical Employers Association used these large dominoes to illustrate his address on accident prevention. Here he discusses them with Mrs. Beith (centre) and Mrs. Eric Taylor, St. Marys.

REVISE RURAL DENSITY REQUIREMENTS AND HAMLET RURAL RATE STRUCTURE

ONTARIO Hydro is to broaden its density requirements for farm line extensions by building two-thirds of a mile, along a public road, from existing lines to any soundly-established farm instead of one-third of a mile as at present. In addition, the Commission will shortly introduce into the present hamlet rural rate structure a new third block of 500 kilowatthours a month at 1.1 cents per kilowatthour with ten per cent discount for prompt payment, making a net rate of one cent per kilowatthour. This is designed to benefit rural customers in high-density residential areas by bringing their rate closer in line with municipal rates.

Discussing the change in density requirements recently, Hydro Chairman James S. Duncan pointed out that 94 per cent of all the farmers in the province have electrical facilities available to them, a percentage equal to any country in the world. It goes without saying, he stated, that providing service to farms in sparsely-populated areas is expensive and uneconomical. The installation of a mile of rural line costs, on the average, over $5,000.

"Under existing arrangements," continued Mr. Duncan, "Ontario Hydro is prepared to extend its rural lines along a public road, at no cost to the user, to any farm situated within a third of a mile of existing lines. There is another group of farmers, however, living just beyond the third-of-a-mile limit whose understandable desire for electric power has frequently been discussed by our Commission, and has been a matter of concern to the Government and to the local members of parliament in the areas concerned. The desire to serve these customers was ever present in our minds: the cost involved has been the deterrent."

In view of the financial sacrifices involved, the Commission deems it inadvisable to go beyond the 2/3-mile limit. Any potential customer situated beyond this limit, and wishing to obtain electric power will have to build any line in excess of two-thirds of a mile at his own expense. No exceptions can be made to the rule.

In relation to the rate revision, the Hydro Chairman said that strong representations had been made to the Commission by suburban residential customers in the rural system, who had asked that their rates should be more in keeping with those in adjacent municipalities. Thus the Commission would shortly introduce into its hamlet rural rate structure a new third block of 500 kilowatthours a month at 1.1 cents per kilowatthour. This change, he explained, was designed to benefit customers in high-density residential areas by bringing their rate closer in line with municipal rates.



SARTORIAL CREDENTIALS

Smart new blue uniforms, recently authorized by the Sarnia Hydro-Electric Commission are "modelled" by Consumer Service Representative Mel Chappell (left) and Peter Carobia, Meter reader. (Sarnia Observer photo.)

Toronto Hydro Linemen Revive Coal Gas Victims

Two Toronto Hydro linemen, Robert Haire and Fred Thompson, recently demonstrated the value of resuscitation training received under the auspices of the Toronto System. Passing a two-storey duplex on Eglinton Ave., W., in Toronto, they noticed a man stumble from the home. Investigation revealed another man unconscious inside the house. Summoning the Toronto Fire Department they immediately commenced artificial respiration, continuing until the arrival of the firemen with inhalator equipment. After 20 minutes' work, the men, Robert Ward and David Donald, were revived and taken to hospital for further treatment. Firemen said clogged furnace pipes had caused coal gas to seep through the house.

This is the second recent instance of the value of artificial respiration training made available to its staff by Toronto Hydro. A few weeks ago another employee, Richard Taylor, succeeded in reviving his daughter who fell into the water while playing near Rice Lake, north of Cobourg, Ont.

New Toronto P.U.C. Adopts Supplementary Pension Plan

Effective October 1, the New Toronto Public Utilities adopted the supplementary option of the Municipal Hydro-Electric Pension and Insurance Plan. Employees whose service pre-dates adoption of the latter plan will not be required to join, but 50 per cent have signified their intention of joining, Manager T. James Curtis has announced. All new employees will be required to join both Part I and II of the plan.

* * *

In the past 100 years Canada has lost nearly 7,000,000 people by emigration.—*Quick Canadian Facts.*

* * *

Canada's trade deficit in the first half of 1957 was $608 million, compared to $593 in the first half of 1956.—*Quick Canadian Facts.*

ALONG HYDRO LINES



Ottawa Hydro Customers Increasing

At a recent meeting of the Ottawa Hydro-Electric Commission, Chairman Stanley Lewis reported that the number of customers had increased to a total of 75,004 at the end of August, an increase of 1,517 for the first eight months of the present year. During the same period, 12,553 customers had moved as compared to 11,939 during the comparable period of 1956.

It was reported that work on Carling Avenue on power distribution facilities and street lighting is almost completed, and that plans can now be directed towards the completion of other essential work throughout the city. These projects include new street lighting, new station sites, extensions to existing transmission lines, and cable work, and were undertaken to keep up with increasing demands throughout the city, but more particularly in new housing subdivisions.



LEGISLATIVE VISITORS

A PARTY of approximately 80 members of the Ontario Legislature toured the St. Lawrence Power Project area on October 31 this year to inspect construction progress at the international hydro-electric development. After visiting construction areas on either side, the Ontario Hydro guests toured the new communities of Long Sault and Ingleside and also paid a visit to New Iroquois and a rehabilitated area of Morrisburg. Joined by Hon. Ray Connell, Minister without Portfolio and Hydro's Second Vice-Chairman, the party included five other Cabinet members. Left to right: Mr. Connell, Hon. Charles Daley, Minister of Labor; Hon. William Griesinger, Minister of Public Works; Hon. W. K. Warrender, Minister of Municipal Affairs; Hydro Chairman James S. Duncan, who accompanied the visitors; Hon. W. J. Spooner, Minister of Mines, Hon. Dr. Matthews Dymond, Minister of Reform Institutions, with three representatives of Ontario Hydro: Dr. Otto Holden, Chief Engineer; Gordon Mitchell, Director, St. Lawrence Power Project, and J. A. Blay, Director of Information.

Appoint C. A. Campbell Regional Accountant

Charles A. Campbell, formerly Project Accountant at the Sir Adam Beck - Niagara Generating Station No. 2, has been appointed Accountant for the East Central Region, and took over his new duties in Belleville recently. During his 17 years with the Commission, Mr. Campbell has been engaged in accounting work at the site of a number of Hydro construction projects, including the Ogoki Diversion, north of Lake Nipigon, as well as DeCew Falls and the Des Joachims Generating Stations.

Mimico Reduces Hydro Rates

A reduction in Hydro rates for domestic customers in Mimico was announced recently by P.U.C. Chairman Amos Waites. There has been a minimum 8 per cent reduction, which will result in a 14 per cent drop in revenue this year. However, Mr. Waites said, the Mimico Commission had built up a considerable surplus, which could be used to finance any major project. It was believed that the community had reached its peak growth. Thus large capital expenditures for additional facilities were not anticipated.

Jannaway Named Assistant Manager

Three promotions have been announced by W. B. Elliott, St. Catharines P.U.C. Chairman.

Frank Jannaway has been named Assistant Manager of the utility in addition to his duties as Chief Engineer. Mr. Jannaway joined the St. Catharines Commission in 1950 two years after graduation from the University of Toronto as an electrical engineer.

Former senior clerk Roland Taylor has been appointed Acting Office



FRANK JANNAWAY

Manager. Mr. Taylor has been with the local commission for the past seven years.

Miss Joyce Maroney, in addition to continuing her duties as the manager's secretary, has been appointed Secretary to the Commission. The duties of Treasurer have been taken over by Manager Ray Pfaff, succeeding the late V. W. Monro.

Appoint Marvin H. Kelly Atikokan Secretary-Treasurer

Marvin H. Kelly, formerly Chief Clerk of Ontario Hydro's Atikokan Area and of the Kenora Area has taken up his new appointment as Secretary-Treasurer of the Atikokan Township Hydro-Electric Commission. Born and educated at Sioux Lookout in 1930, Mr. Kelly also served as a clerk with Sioux Lookout Hydro-Electric Commission and area clerk at Hydro's Ear Falls Generating Station. Married, and the father of two daughters, he is interested in community work, having served in executive capacities with the Kenora and Sioux Lookout Junior Chambers of Commerce. He has also taken an active part in church work. Mr. Kelly is a great-great grandson of Hon. Donald Gunn, pioneer settler in Western Canada, and, from 1871 to 1876, a member of the first Manitoba Legislature organized after the Riel Rebellion.



MARVIN H. KELLY



HYDRO TROPHY

Stanley Heywood, Consumer Service Superintendent, West Central Region, presented on behalf of the Commission the Ontario Hydro trophy at this year's International Plowing Match sponsored by the Ontario Plowmen's Association. Held near Simcoe, Ontario, the match was an outstanding success. The Commission's exhibits included models of the St. Lawrence Power Project and an electrified farm, together with demonstrations of various electrical applications in modern agriculture.

Mr. Heywood is shown at the banquet marking the conclusion of the match, as he presented the Hydro prize, a ½-horsepower motor, to Lorne Ballantyne, Exeter (right). The trophy was awarded as first prize in Class 18 for tractor plowing, open to those who had not won a first or second prize in the open tractor class, and to plowmen under 21 years of age.

LONDON PLAQUE HONORS SIR ADAM



PLACED by Ontario's Archaeological and Historic Sites Board, the plaque perpetuating the former location of a barracks in London's Victoria Park, which housed British garrisons from 1838-1873 was unveiled by Hon. Ray Connell, Hydro's Second Vice-Chairman. Participating in the ceremony were (left to right): Mayor Ray Dennis, Campbell Calder, Mr. Connell, Brig T. G. Gibson and Leslie R. Gray, President, London and Middlesex Historical Society.

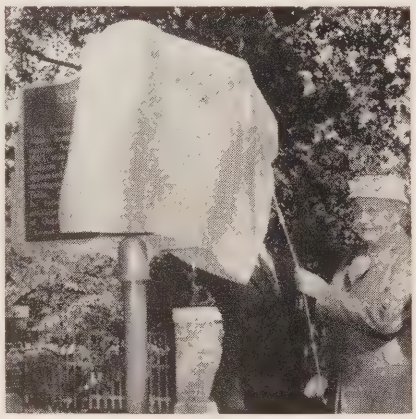
PLAQUES commemorating the services of Sir Adam Beck and of British troops in Canada were unveiled recently in London by Ontario Hydro's 2nd Vice Chairman, Hon. Ray Connell.

Among those attending the ceremony were Miss Stella Venning, Sir Adam's secretary from 1908 to 1925, and Miss Lillian Dickie, his nurse. Seeing Miss Venning in the crowd, Mr. Connell invited her to step forward and assist him in unveiling the plaque in front of "Headley," Sir Adam's former residence on Sydenham Street.

The plaques were placed by the Archaeological and Historical Sites Advisory Board, that of Sir Adam being inscribed:

"This house, 'Headley,' was the home from 1900 to 1925 of Sir Adam Beck, father of Ontario's publicly-owned hydro-electric power system. Born at Baden, Canada West, he came to London in 1885, was elected Mayor, 1902, and a member of the Ontario Legislature 1902-1919 and 1923-25. Sir Adam was appointed, in 1903, a commissioner of power from Niagara Falls. Advocating public ownership, he introduced in the legislature a bill establishing The Hydro-Electric Power Commission of Ontario, of which he was Chairman 1906-1925."

The other plaque unveiled by Mr. Connell in Victoria Park marks the former location of frame barracks erected to house British troops sent in 1839 to guard against border raids following the revolution of 1837-38.



ANOTHER London site officially designated was "Headley," home of Sir Adam Beck. Miss Stella Venning, Secretary to the first Hydro Chairman, 1908-1925, officiated.

St. Catharines P.U.C. Secretary-Treasurer Passes

Vivian Watson Monro, 46, Office Manager and Secretary of St. Catharines P.U.C. died recently at the St. Catharines General Hospital after a comparatively brief illness.

Mr. Monro was born in Thorold, and had lived all his life in the St. Catharines area. He was active in church work, being a member and elder of the Knox Presbyterian Church, St. Catharines, as well as serving on the board of directors.

He also was affiliated with the local branch of the Canadian Cancer Society, and was a member of Maple Leaf Lodge No. 103 as well as past senior counsellor of United Commercial Traveler's Association.

Surviving are his widow, Eleanor Richardson Monro, two sons, Bruce and Robert, of St. Catharines, a brother Hugh Monro, Thorold, six sisters and his parents, Mr. and Mrs. William Monro, Thorold.

Orillia Commission Sets Up Rain Station

Orillia Water, Light and Power Commission has established a rainfall station in conjunction with the Meteorological Bureau of the Department of Transport, which has supplied the commission with measuring instruments.

The Orillia system is recording total precipitation, and it is anticipated that this data will be valuable in designing sewers, as well as in solving water storage problems associated with the utility's Swift Rapids generating station.



"SHOCKED" EAGLE

MOUNTED on the wall is an 11-pound bald-headed eagle with a 6½-foot wing span, which apparently met death by electrocution when it brushed an Ontario Hydro line on the farm of Mr. and Mrs. Stanley Kaufman (shown above) in the St. Marys, Ontario, area. Conservation Officer Charles V. Horton, Sebringville, who disposed of the "shocked" eagle, said this bird was rare in that part of Ontario, although eagles are fairly common in the Bruce Peninsula.

Attend Prime Mover Control Conference

John McFarlane and John Ward, representing Ontario Hydro, attended the 21st Prime Mover Control Conference at Rockford, Illinois, recently. The conference was sponsored by Woodward Governor Company, the world's largest and oldest exclusive manufacturer of hydraulic governors, and covered all phases of application in the hydro-electric, diesel, steam, aircraft, gas turbine and other fields of governing control.

Scarborough P.U.C. Plans Extensions

Scarborough P.U.C. will have spent more than $1,350,000 by the end of this year on new substations, equipment and additional street lighting. Chairman Arthur O. Leslie recently pointed out, however, that the expenditure was below last year's figure, due partially to the substantial decline in building activity in the township.

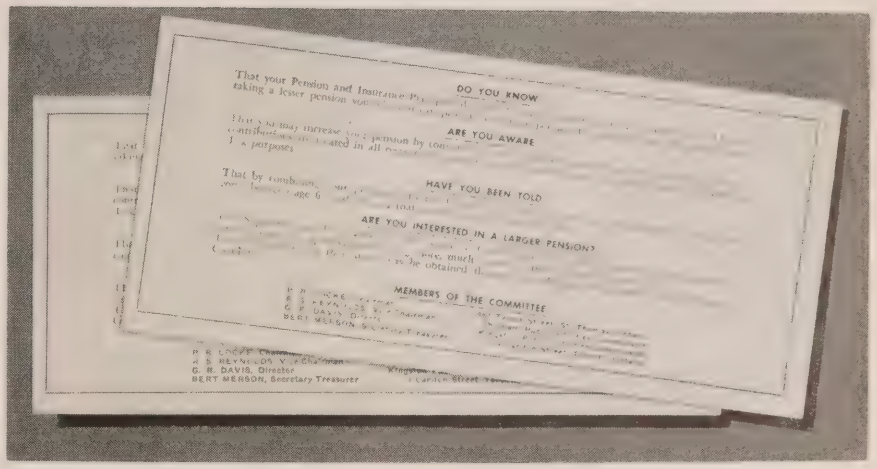
Toronto Township Plans To License Electricians

Toronto Township has authorized a by-law to examine, govern and license electrical contractors and master and journeymen electricians doing business in the municipality. A board of examiners will check the qualifications of applicants for licenses, but previously-licensed master electricians will not be required to undergo examination unless they wish to do this. The new by-law, which will take effect on January 1, 1958, will not affect industrial electricians. The new board of examiners has already held its first meeting to discuss preliminary details relating to the examinations and procedures to be followed.

Plan New Area Buildings at Aylmer

Ontario Hydro is undertaking construction of a new area office building and area service building at Aylmer. The new facilities will be located on the west side of Highway No. 73 just north of the town.

R. M. Laurie, Manager of the Commission's Western Region (London), stated that the present rented accommodation for administrative and storage purposes has become inadequate and the new buildings are required to provide more efficient service to the customers in the expanding Aylmer Operating Area. The contract has been awarded to a local firm — Hendriks & Hermans, General Contractors, Aylmer.



INFORMATION BLOTTER

DESIGNED to create interest in particular features of The Municipal Hydro-Electric Pension and Insurance Plan, a special blotter has been prepared by the committee, and sent out to the affiliated utilities for distribution to each employee covered by the scheme.

The blotter, a copy of which is reproduced above, supplies information in brief on such subjects as: appointment of a "last survivor"; lifetime pensions for a wife or other beneficiary; extra contributions to the Plan, which are deductible from income tax; combining Hydro pensions with government old age pensions; the Supplementary Plan, which enables employees to obtain better pensions provided the utility concerned and at least one-third of its employees agree to increase contributions by approximately 2½ per cent.

Members of the Committee, which has its headquarters at 14 Carlton St., Toronto, are: Chairman P. R. Locke, St. Thomas; G. R. Davis, Kingston, and R. S. Reynolds, Chatham, Directors, and Bert Merson, Toronto, Secretary-Treasurer.

New Searchlights Will Triple Falls Illumination

Within the next few months, searchlights almost three times as powerful as those now in use, are to be installed at an estimated cost of more than $150,000 to illuminate the twin cataracts of Niagara Falls.

The 24 searchlights, each of 55 million candlepower, which have been floodlighting the cataracts with white and colored light for 32 years, cost $60,000 in 1925.

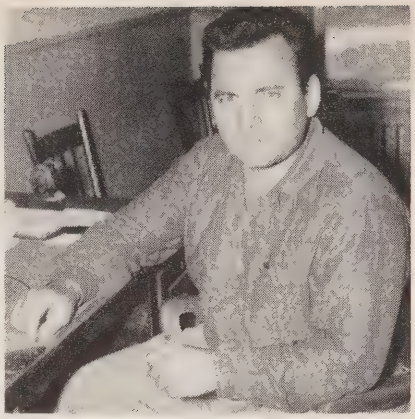
Lamps of new design were demonstrated by representatives of two electrical manufacturers on September 5, following a dinner meeting of the Niagara Falls Illumination Board. Automatic changing devices for the colored lights and more powerful light sources were among the features of the new lights.

The Illumination Board has a reserve fund of $50,000 for the replacement of the lights. The balance of the cost will be borne by the cities of Niagara Falls in Ontario and New York State, and Ontario's Niagara Parks Commission. Ontario Hydro supplies power from its Ontario Power generating station (near the base of the Horseshoe Falls) as its contribution to the illumination spectacle.



EYESORE TURNED INTO BEAUTY SPOT

A garden planted at a Galt P.U.C. substation has aroused widespread admiration among citizens in recent months. Conscious of their responsibilities to the community, the utility engaged a gardener who has effected considerable improvement in commission properties throughout the city.



PAUL GRAVELLE

Paul Gravelle Appointed To Sturgeon Falls Post

Paul Gravelle, 35, has been appointed Superintendent of Sturgeon Falls Hydro-Electric Commission replacing John Mayer, who retired on August 1. Mr. Gravelle started his Hydro career in 1939 when he joined the staff of the Ontario Hydro's Sudbury Area. Two years later he entered the employ of the Sudbury Hydro Commission. In 1955 he was appointed Superintendent of Chapleau Hydro Commission. A member of the A.M.E.U., Mr. Gravelle is married with one daughter.

Lewis Reappointed For 6th Term As Ottawa Hydro Chairman

Stanley Lewis has been appointed Chairman of the Ottawa Hydro-Electric Commission for a further term of two years. Announcement of his reappointment was made following a recent meeting of the commission.

Mr. Lewis, who was first appointed a member of the commission in 1936, is now serving his 20th year with that body and his sixth as chairman. He served continuously from 1936 to 1948 inclusive during his tenure of office as Ottawa mayor, and was chairman during the year 1936. After an absence of two years, he returned to the commission in 1951, served as commissioner for two years, and then in March, 1953, was appointed chairman. He has served in that capacity ever since.

O.M.E.A., District 4 Offers $300 Bursary

President Bert Merson, O.M.E.A. District 4 (Toronto area), has announced that the Association has offered a bursary of $300 to be awarded annually by the Senate of the University of Toronto upon the recommendation of the Council of the Faculty of Applied Science and Engineering. Students qualifying for the bursary must: be registered in the fourth year in electrical engineering; have a good academic standing; be in need of financial assistance; apply to the Secretary of the Faculty not later than October 15 after registration in the fourth year, giving full particulars.

In a letter of acknowledgment to D. G. Moffitt, Secretary of District No. 4, University of Toronto President, Dr. Sidney E. Smith (now Canada's Minister of External Affairs) said: "In accepting the splendid offer, I express to you and your fellow-members, on behalf of the Board of Governors and the Senate, our deep gratitude for your generous action. I know of no better investment than the kind that you are making in the useful careers of talented and deserving youth."

The Senate recently informed the association that the bursary has been awarded for the 1957 term to L. J. Perfecky, Toronto.

Sudbury Provides Night Depository

Payment of accounts has been made easier for customers of the Sudbury Hydro-Electric Commission by the installation of a night deposit box at the utility's main office. Local newspaper advertisements drawing attention to this unique service included a profile sketch (shown below) of the office showing the exact location of the night depository.



BLAKER HEADS CENTRAL ONTARIO METERMEN

Lionel A. Blaker, Ontario Hydro, East Central Region, Belleville, was elected President of the Central Ontario Meter Association during the recent fall meeting. The 1958 executive, shown in the accompanying photograph, includes: Front row, from left — T.R.B. Morgan, Ontario Hydro, Toronto, Second Vice-President; Earl Moynes, Lindsay, Director; V. H. Bailey, Toronto Township Hydro-Electric Commission, First Vice-President; Standing — Ross Fralick, Toronto Hydro-Electric System, Secretary-Treasurer; Mr. Blaker, and Joseph Douglas, Scarborough P.U.C., Directors Ontario Hydro's Research Division activities were ably outlined by J. H. Seymour, Regional Liaison Engineer, during the one-day session attended by some 120 utility representatives. Other speakers included W. W. Finley, District Inspector, Electricity and Gas Inspection Service, Canadian Government, who discussed color coding and gas inspection services, while K. R. Dunthy, Quebec Works, Canadian General Electric Co. presented a paper on "Watthour Meters, Past — Present — Future."



Street Light Overhaul Planned For Welland

A complete overhaul of the downtown Welland Street lighting system during the ensuing 12 months has been announced by Chairman Harold W. Walker, Welland Hydro-Electric Commission. In all 166 fluorescent lights, each with four six-foot tubes, will be installed, he stated. The new installations are part of a $170,000 improvement program to be financed through the sale of debentures.

Hydro Building Serves As Reunion Headquarters

Beamsville and Clinton Township Reunion Committee recently expressed appreciation to Ontario Hydro for its courtesy in temporarily placing a Beamsville building at their disposal. The Commission granted permission to use the former headquarters of Beamsville R.O.A. during the reunion for registration billeting and other administrative purposes.

Forest Hill Village Engineer Passes

Associated with the growth and development of Forest Hill Village (Toronto) for more than a quarter-century, Nicol MacNicoll, the community's municipal engineer, died recently after a brief illnes.

Born at Barrie in 1898, he was educated at Upper Canada College, Toronto, and graduated from the University of Toronto with a B.A.Sc. degree in civil engineering. He was municipal engineer in Etobicoke Township before his appointment to the Forest Hill Village position in 1931. In the latter capacity he was responsible for the operation of the Hydro System. A well-known sportsman, he was an active golfer and curler, and was prominently identified with Forest Hill Rotary Club. He also held memberships in the American Waterworks Association (Canadian Section), the City Engineers Association, the Association of Professional Engineers of Ontario and the Canadian Institute of Sewage and Sanitation.

SILVER ANNIVERSARY

(Continued from page 17)

quet, directed attention once more to public relations on the highest spiritual plane by lauding the philosophy of discontent — particularly as it concerned individual behavior and a desire for improvement. During the course of an inspiring address Mr. Rodney said that this generation must either improve its spiritual standards or run the risk of destruction.

Reverting to panel discussion on the second day of the conference, Stuart Mackintosh, Toronto; Robert Robinson, Mimico, and John Gomer, Toronto Township, offered useful suggestions regarding the control of miscellaneous stores items.

An open forum led by E. H. Ells, J. F. Porter, H. J. Brennan, E. M. Frantz, Municipal Accountants of Ontario Hydro's Western, Toronto, West Central and Niagara Regions respectively, and Dan Gorrie, Municipal Accounting Supervisor in the Commission's Head Office, discussed many matters of accounting interest, directing particular attention to the presentation of bills for street lighting service.

In winding up the conference, Mr. Durward expressed pleasure at the active contribution to discussions made by delegates, and stated that Jack Coubrough, Hamilton, was to be recommended to the AMEU annual meeting as the next committee chairman. Niagara Falls, Ontario, had been chosen as the site of the 1958 convention, he announced.

Congratulations were extended to members of the Program Committee under Chairman Frank Wilkinson, Business Manager of the London P.U.C., for their organizational arrangements of a highly successful convention. *by Frank C. Wood.*



GIANT TRANSFORMER FOR "INFANT" MEMBER

An "infant" member of the Hydro family, which it joined last year, the Ajax Hydro-Electric Commission is busy with a program of extensions and improvements to its electrical distribution system, which includes a new substation. A new transformer, weighing nearly 20 tons was recently purchased by the utility. Workmen are depicted in the accompanying photograph preparing to unload it in the presence of (from left) Mayor Kenneth Smith, Ajax Chairman Roger G. Conant and Manager-Secretary John K. Sanders. The new substation is now in service. (Photo by John Mills.)

TO NEW HEIGHTS

(Continued from page 5)

river on the dividing line between Osnabruck and Williamsburg Townships will be allocated to summer residents, who formerly had cottages along the north shore of the river in these two townships. For this purpose, each township will be represented on an allocation committee, together with representatives of the cottagers and Ontario Hydro.

Another related relocation project is the work of diverting two main arteries of transportation. Late in July of this year, passenger trains began passing over a new section of track between Cornwall and Cardinal to herald completion of the relocation of 40 miles of double-line, main Canadian National Railways track between Montreal and Toronto. Almost simultaneously, work crews began tearing up the old section of track, which passes through an area that must be cleared for the raised water level necessary for the St. Lawrence Seaway and Power Project.

The second diversion affects No. 2 Highway, main motor - traffic artery between the eastern and western areas of southern Ontario. Ontario Hydro is building some 35 miles of new road north of the old highway to keep this important east-west road open.

Five New Stations

So careful has been the planning that all the new communities will be located close to the new highway and the new railway. Five new railway stations, each of modern brick construction with complete facilities, have been built at Iroquois, Morrisburg, Ingleside, Long Sault and Cornwall. With the inauguration of passenger service over the new rail line these new stations were placed in service.

Among the busiest workers in the rehabilitation area during the past few months have been the demolition crews and wood-cutters, most of them employed by contractors, who are handling the clearing of the affected area.

Today, despite the difficulties inherent in such a vast and trying program of moving, demolishing and building anew, there is already evidence of great success.

In the over-all relocation plan, provision has been made for ample expansion in each of the new communities. In Iroquois, Morrisburg, Ingleside and Long Sault, areas have been set aside for industrial development, and each community is optimistically and vigorously seeking new industries.

Further room for industrial expansion has been assured by the Ontario Government. Hon. William M. Nickle, Minister of Planning and Development, has voiced his government's intention of offering every assistance to the new communities in making all surplus land, not required for the relocation of towns, highways, railways and parks, available to industry.

With the trying relocation period a thing of the past, for the most part, the people of the St. Lawrence valley are now facing the future with confidence. ■

Presents Paper On Nuclear Energy

W. E. Cooper, Fuel-Electric Generation Department Engineer, Ontario Hydro, was among the lecturers during a recent petroleum engineering course sponsored by Imperial Oil Limited at Sarnia, Ont. Mr. Cooper's paper dealt with the production of electricity from nuclear energy.

Professionel Engineers on the Increase

There are 16,094 registered professional engineers in Ontario, an increase of 1,317 over 1956, it was announced recently by the Association of Professional Engineers of Ontario. The number of applications for registration continues at a rapid rate, the Association's Executive Council was told at its meeting, with 1,917 being received this year.

The Council approved revision of the engineering technician program, which would classify the first three grades as engineering technicians, and the top two grades as engineering technologists (grades I and II). Originally, all five grades were classified as engineering technicians.

The Council was advised that 419 applications for certification as engineering technicians and technologists have been received, with 247 already having been processed. The provinces of Manitoba, Alberta and British Columbia have expressed interest in the program and are considering instituting similar certification legislation.

PLAQUES COMMEMORATE SERVICE OF KITCHENER COMMISSIONERS

COMMEMORATING civic service rendered by the late Ivan Shantz and George W. Gordon, bronze plaques were unveiled during recent ceremonies arranged by Kitchener Public Utilities Commission.

Attending the commemoration event were representatives of the Kitchener utility, including present and former commissioners and key members of the staff, members of the families of the men honored, civic officials and Ontario Hydro officers.

During a tour of several utility stations, Mrs. Gordon unveiled a bronze tablet to her husband's memory at the Wendell Ave.-Preston St. rectifier station in Kitchener, while Keith Shantz, unveiled the plaque in honor of his father at the Caroline and Allen Sts. station in Waterloo.

Commissioner Bruce Weber, who originated the plan for honoring the former commissioners, recalled that Mr. Gordon had served on the Kitchener Commission for 12 years, two as mayor of the city. He was also a city councillor for eight years. Mr. Shantz, a city councillor for nine years, had given distinguished service as a commissioner for a 10-year period.

At the same time, the party visited substations where plaques had been placed to honor the services of three other former commissioners, Eugene Sauder, James Jaimet and James Cundick, who were present.

Chairman Delton F. Kissner welcomed the guests participating in the tour, and introduced Commissioner Weber, who presided as master of ceremonies. Rt. Rev. Finlay Stewart, D.D., dedicated the plaques, paying tribute to the men honored by the Kitchener utility. Commissioner Weber, in mentioning the civic service of Mr. Sauder, pointed out that the latter had been responsible for inaugurating the inter-city bus service, while Mr. Jaimet, as the first chairman of the untility's transportation committee, had kept public attention focused on the bus service. Mr. Cundick was lauded as "a man with a civic record, which could not fail to arouse admiration."

He also announced that plaques had been placed at other substations renaming them in honor of seven former commissioners: A. L. Breithaupt, George Lippert, August Lang, Carl Kranz, David Gross, E. E. Ratz and Charles Doerr.

P.U.C. Engineer A. W. Bromley, who explained the purposes of the various buildings at which stops were made, said the rectifier stations provided power for the trolley coaches, while the other substations reduced voltage for distributing power to different sectors of the city.

The ceremonies were concluded by the serving of refreshments in the West Avenue substation. ■



△

KEITH SHANTZ, a son, unveils a plaque at a rectifier station commemorating the public service rendered by a former Kitchener utility Commissioner, the late Ivan A. Shantz. Dr. Stewart (left), dedicated the various plaques during the recent ceremonies.



△

COMMISSIONER BRUCE WEBER (right) congratulates former Commissioner James Cundick after officially designating a Kitchener substation in the latter's honor. Others, from left: Rt. Rev. F. G. Stewart, D.D., Mrs. Cundick and Delton Kissner, P.U.C. Chairman.



△

MEMBERS of the family of the late Commissioner George W. Gordon: Mrs. Herbert Shoemaker, a daughter (left), Mr. and Mrs. George W. Gordon, Jr., watch as Mrs. Gordon unveils a plaque at another Kitchener rectifier station honoring memory of her husband, a former mayor.



ONTARIO HYDRO NEWS



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December, 1957

SEASON'S GREETINGS

CHARLES DICKENS once said "There seems a magic in the very name of Christmas." And so it seems even today as we watch the busy throngs of shoppers, each person intent on remembering others. As we pause to recall the true message of Christmas, we are mindful that there are still men of goodwill in every land — men of vision and faith, of courage and action — working quietly and devotedly to make "Peace on Earth" a cherished reality.

The year 1957 has been one of great challenges and fruitful accomplishment. As we look forward to a new year, with confidence and anticipation of even greater achievements, we remember with particular gratitude the individual contributions of all associated with Ontario's publicly-owned Hydro enterprise.

At this time, too, we are particularly conscious of the bonds of friendship within the "Hydro family," and we take keen pleasure in extending sincere Christmas Greetings and warmest wishes for a Happy New Year.



JAMES S. DUNCAN
Chairman



W. ROSS STRIKE
First Vice-Chairman



HON. RAY CONNELL
Second Vice-Chairman



OTTO HOLDEN
Chief Engineer



A. W. MANBY
General Manager



D. P. CLIFF
Commissioner



LT. COL. A. A. KENNEDY
Commissioner

DECEMBER, 1957

VOLUME 44, NUMBER 12

ONTARIO HYDRO

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CREDIT — We are indebted to H. H. Leeming, Director of Engineering, for his permission to reproduce one of his paintings with our 1958 calendar, which appears on the inside back cover of this issue.

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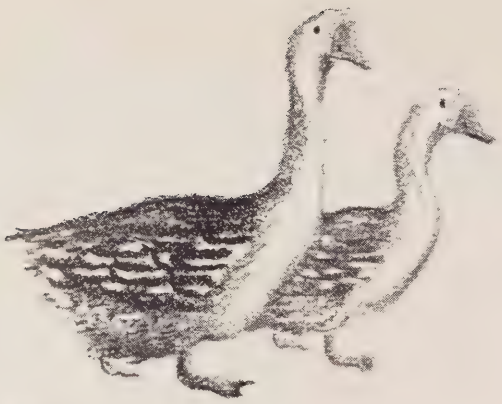
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THE

By HORACE BROWN

EARLY in 1931, a devout Kitchener man resolved to follow the ways of the early Christians, living not for personal gain but for the common good. He was joined by his wife, one other adult, and three children.

The little group took stock of its assets: 200 pullets, a half-interest in an old, lame horse, and some very modest household chattels. The man, Julius Kubassek, went to a dresser drawer, opened it, took out the entire cash resources: six cents.

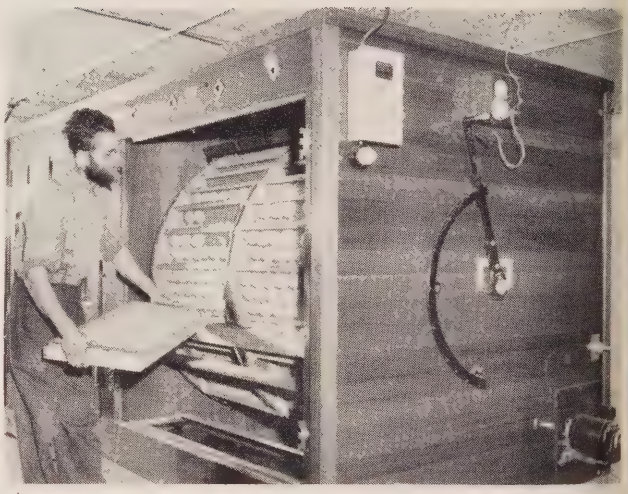
But Brother Julius (as he is now known) and his "brothers and sisters" had the courage of their convictions. After an unsuccessful venture in western Canada they returned to Ontario. Since 1941, the Community Farm of the Brethren, at Bright, near Galt, Ontario, has grown to 1,200 acres, which embrace four completely-electrified farms. Believed to be the largest pedigreed goose farm in North America, it "belongs" equally to all members of the brotherhood . . . 12 adult males, 14 adult females, and 28 minors.

The Farm is truly a community in itself, with its own religious services, school, and a volunteer fire department. Spiritually devout and of simple tastes, the members of the unique community have, nonetheless, a lively interest in world affairs.

While Brother Julius is the nominal leader of the community, it is stressed that there are no leaders in the accepted sense of the word. Decisions are made by the "Council," composed of the adult members of the group, and the council's decisions must be almost unanimous.

The unique community is particularly noted for its geese — variously known as "Baby Goose" and "Brethren's Goose." The flock was started with the eight geese the Brethren brought with them from western Canada when they returned east in 1940. After 17 years of patient experimentation they have bred what is smilingly and justifiably referred to as their "trade secret" . . . a goose that is long, deep and meaty

(Continued on page 4)



△ THESE TWO PHOTOGRAPHS represent the "before-and-after" phases of the farm's important goose-raising operation. Above, Brother Julius Kubassek, Jr., places a rack of eggs in one of the community's four electric incubators. Below, bundled against the cold of the "sharp-freeze" unit, he displays a packaged "Baby Goose," one of several awaiting shipment. ▽



GOLDEN GEESE

Famous for it's poultry, the unique Community Farm of the Brethren near Galt, Ont. provides the main course for many a Christmas dinner

COMMUNITY FARM OF THE BRETHREN now embraces some 1,200 acres. This year the unique community became one of the few farms in Ontario to instal a modern, three-phase wiring system. Male members are shown raising a new pole.



SITTING among a flock of goslings, two-year-old David Kubassek fondles a reluctant "pet." ▷



in the breast, and low on fat content. While it has taken nearly two decades to bring this specimen of the poultry world to the present state of near-perfection, the Brethren are still not satisfied that their continual cross-breeding and selection have produced the ultimate in goose, and the study is continuing. But meanwhile they are doing a brisk business, and many a tasty bird from the Farm will grace Christmas tables this year.

The Farm maintains a flock of some 10,000 of these celebrated geese although some 8,000 are marketed annually. The supply cannot begin to meet the demand, however, and the Brethren are considering expanding their poultry flock. Other breeders in many parts of North America, as well as poultrymen in the West Indies, purchase some 8,000 to 9,000 day-old goslings annually, receiving their purchases via air express.

The goose provides many by-products on this farm too. The sisters of the colony "put up" some 400 packages of egg noodles each week, while their goose-feather pillows, another important source of revenue, are in great demand.

Although the honking of geese is almost constant at this farm, the lowing of cattle is equally common. A herd of 70 purebred Holsteins, providing milk for shipment, as well as several beef cattle, are included in this livestock "population." In fact it is truly a "mixed farm" with some 200 acres in wheat and 300 acres in assorted grains, while 200 acres are devoted to hay, alfalfa and grass and 175 acres to summer fallow.

Indispensable handmaiden of the communal group is electricity. When *Ontario Hydro News* visited the community recently, Brothers Andrew and Julius, Jr., were busy installing one of the few three-phase wiring systems to be found on an Ontario farm.

100 ITEMS ALTERED

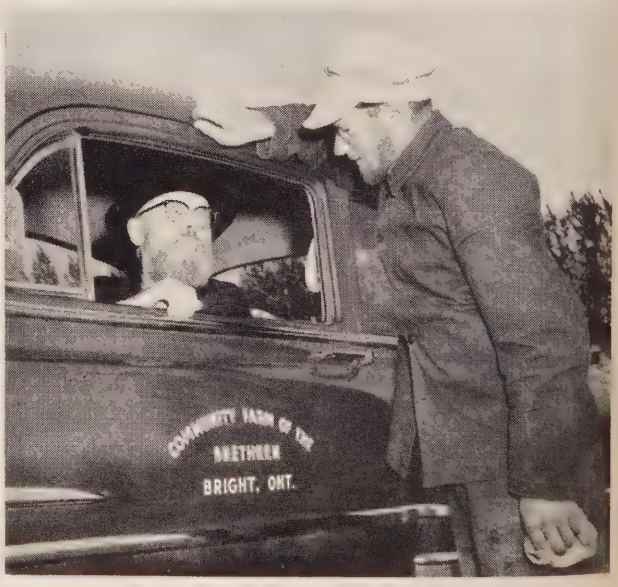
During the summer, Ontario Hydro's frequency standardization crews moved in to find nearly 100 frequency-sensitive items to alter for operation at 60 cycles.

"It would be literally impossible to operate our farm without electricity," said Brother Julius, Sr. "While we have many hands to make light work, we find that Hydro adds hundreds of hands to help in fulfilling our daily tasks."

The important goose-raising operation is mainly electrical, beginning with the incubation of the egg, and ending with the packaging and fast-freezing of the famous "Baby Goose," a process, incidentally, that, year after year, has won several top prizes at the Royal Agricultural Winter Fair, Toronto.

FOUNDER AND NOMINAL HEAD of the community, Brother Julius Kubassek (seated in the truck) discusses a farm management detail with another leader, Brother Orval Baer.

▽



BEFORE GEESE ARE PLUCKED they are placed in a hot-water bath by Brother Orval. This dip in the electric washing machine facilitates the removal of feathers, which are dried and used to make pillows.



Four incubators hold between 13,000 and 14,000 eggs. During the four-week incubation period, the temperature is thermostatically-controlled, while humidity is maintained at approximately 88 per cent.

The electric incubators replaced Mother Nature there after 1949, when the Brethren had to find 240 "broody hens" to sit placidly on the eggs their geese were ignoring. This meant a frantic scouring of the countryside, and much expense. Since that time, while the initial outlay per incubator is about $3,000, the electric "maternity ward" has proven more economical and a better parental risk, producing a higher yield of goslings than the natural method.

The workshop is also a source of pride for the mechanically-inclined Brothers, containing many electrically-powered tools, including a lathe, drill, saw and grinder, which enable them to make almost any kind of repairs required.

The sawmill supplies lumber from trees cut on the farm for the "wagon factory." Here, the men of the community make 18-foot long forage-box wagons, equipped with under-carriages salvaged from "retired" trucks.

The Brethren have, indeed, come a long way since May 3, 1931, when Julius Kubassek formed his first little group with six cents and unlimited faith. ■

MEMBERS OF THE COMMUNITY are preparing geese for "fast-freezing." Air is exhausted from the plastic bag (right) before the goose is dipped in cold water (left) to shrink the covering.



REVERSING THE TREND

In spite of creeping inflation, Ontario Hydro has been able to stand firmly against the trend, and supply electric power to the domestic customer at a lower unit cost than before the Second World War.

Presenting a review of Ontario Hydro operations for the past 12 months at the annual meeting of O.M.E.A. District 4 in Toronto, Chairman James S. Duncan stressed that the cost of electricity to the average Ontario domestic user "is among the lowest of any country."

Mr. Duncan referred to Canada's consumer price index which indicated that the price of all commodities had increased by 77 per cent, clothing by 80 per cent, food by 113 per cent and the average weekly wage by 144 per cent between 1940 and 1955. In contrast, the average kilowatt-hour cost for domestic and farm electrical services in Ontario decreased by four per cent during the same period.

The speaker also pointed out that the average cost of electricity to Toronto householders had remained the same since 1939. He expressed the view that Hydro and its partner municipalities may have been too modest in bringing these accomplishments to the attention of the people.

Dealing with power consumption, which the Chairman described as "a true reflection of the high living standards of the people concerned," he said that the per capita consumption in Ontario, during 1956, was 5,300 kilowatt-hours, whereas the average for all of Canada was 4,600. He compared this with the United States average of 3,600 kwhrs., adding that the per capita consumption in most countries of Europe was much lower still.



No Alternative

In referring to the attention which had been directed to Hydro's decision to build two of the world's largest thermal plants in the Toronto-Hamilton area, Mr. Duncan said that the Commission was "keenly alive" to the desirability of using uranium mined in Ontario rather than imported coal. The Commission, however, had "a very real duty to perform" in supplying the fast-growing power requirements of the province at the lowest cost consistent with satisfactory service. He announced that a reactor under study at Chalk River might become economical for base load application before 1970, but that, meanwhile, there was no alternative to coal-fired thermal plants.

The Chairman outlined progress on some of the major Hydro projects, saying "the most notable of the plants now under construction, ready for construction, or approved this year would sound like a roll call

Hydro Chairman Reviews Commission Operations at O.M.E.A. District Meeting



△

ONE OF THE FEW lady members attending the annual meeting, Mrs. C. A. Plant, Brampton, is shown in conversation with D. E. Dingwall, Richmond Hill (left); Norman Maughan, East York Township, and W. E. Wright, Toronto Township.



TH MBERED but not over-awed, R. T. Greer, New
on (left), was noted in a discussion with three
ni P.U.C. representatives. From the left they are:
ni P.U.C. representatives. From the left: Robert
irpn, D. B. Michie and Mayor W. A. Edwards.

of the great power factories of the future." He described the vast St. Lawrence Power Project in some detail, and assured his listeners that the Ontario Hydro project would be completed on schedule and within the cost of the original estimate — an indication of the "effectiveness and the reliability of this splendid organization."

In closing, the Chairman observed that there were presently some adverse factors affecting the general economy of Ontario and the country. He expressed confidence that the present situation was only a pause in the "rapid development of our economy which has not only characterized the Canadian scene since the end of World War II, but has been outstanding amongst most nations of the world." He said there was nothing so far to indicate that Hydro would be justified in revising its future planning downward.

Details of a comprehensive educational and publicity program based on the theme "Live Better Electrically" were outlined by James A. Blay, Ontario Hydro's Director of Information. He explained that the program, scheduled for launching early in 1958, was the result of an extensive review. This survey had included the possible effect of competition from natural gas on municipal loads and revenues, and had been conducted in response to an O.M.E.A. resolution asking the Commission to "inaugurate a campaign to advise the public in the many uses of electric energy."

Mr. Blay felt that the brief wording of the resolution "implied a note of real concern, undoubtedly promoted by aggressive action on the part of the natural gas interests." He said that Hydro virtually had the field to itself for many years. The speaker emphasized that this situation had changed very quickly with the rapid construction of the natural gas pipeline from the west, and that Hydro, particularly the municipal utilities, "must take positive steps to protect the loads and revenues that have been such an important part in the success and outstanding progress of the Hydro enterprise."

Load Factor Vs. Rates

The Director of Information explained how the loss of large revenue- producing appliances, such as electric ranges and water heaters, would be certain to lower a utility's load factor, and perhaps eventually result in increased rates. He cited the case of the Windsor Utilities Commission, which had experienced a reduction in the water heater load of 40 per cent since 1951, "due to the promotional policy of the gas company." On the other hand, he

(Continued on page 8)



△

DR. V. S. WILSON, Etobicoke Township, newly-elected President of O.M.E.A. District 4 (third from right), receives congratulations from Bert Merson, Toronto Hydro, who has held the office for the last two years. Other members of the new executive are, left to right: A. O. Leslie, Scarborough Township; D. G. Moffitt, Toronto, Secretary-Treasurer; J. A. Orr, North York Township; Mr. Merson, Dr. Wilson, A. H. Waites, Mimico, 1st Vice-President and John McMechan, Toronto; J. T. Armstrong, Georgetown, 2nd Vice-President, was not present.

said, active competition could be a very good thing if it meant that the municipal systems would be "looking to their laurels" and striving even harder to improve their facilities and services.

In describing the promotional program which had been drawn up, Mr. Blay emphasized that it was, "in its very essence," a co-operative undertaking for the municipal systems and Ontario Hydro. Intensive efforts are also being made to enlist the support of the electrical industry generally so that manufacturers, contractors, suppliers, the Electric Service League of Ontario and all those with a vital interest at stake might assist and benefit.

The speaker used colored slides to illustrate the various presentations and the wide range of media that would be employed to induce the public to "Live Better Electrically — the Safe, Clean, Modern Way." Included were posters, streetcar and bus cards, school book covers, postage meters, window displays, blotters and newspaper advertisements. Mr. Blay said that the same slogan was also being used by the electrical industry in the United States so that Ontario would benefit from the "spill-over" value of advertising and other promotion that will be done nationally by the U.S. electrical industry.

Members were welcomed by President Bert Merson who described the O.M.E.A. as "the means by which the voice of municipal commissions across the province can be heard." He said that it was the function of the O.M.E.A. "to express itself in regard to Hydro affairs, not only to Ontario Hydro but in whatever other circles matters relating to municipal Hydro operations are affected." The establishment of a $300 bursary for a fourth year student in electrical engineering at the University of Toronto was among the achievements of District No. 4, during the past year.

"The Functions of a Local Hydro Commission" was the title of an address delivered by Gordon Fuller, President of the O.M.E.A., in which he suggested basic procedures likely to foster more effective electrical

service at the municipal level. W. J. Wylie, President of the Electric Service League of Ontario, briefly sketched the constitution and functions of the League, and described how it was organizing the promotional efforts of the electrical industry of the province leading to the observance of National Electrical Week during the week of February 9 to 15, 1958.



Two Resolutions

Two resolutions originating with the East York and Toronto Township Commissions were passed during the business session for consideration at the next annual meeting of the parent O.M.E.A. assembly. The Toronto Township resolution urged that the Ontario Association of Mayors and Reeves and the Ontario Municipal Association, as well as the O.M.E.A., make representation to the Ontario Government urging that the province absorb the entire cost involved in relocating municipal utility facilities which might be distrupted due to the construction of through highways. The East York resolution proposed that all public utilities, in the interests of public safety, be declared essential industries and that the Ontario Department of Labour, if requested by a utility, be empowered to declare a "no-strike" or "lock-out" until a settlement has been reached.

Dr. V. S. Wilson, Etobicoke, was elected District No. 4 President for 1958, succeeding Mr. Merson who held the office for the previous two years. Other officers elected at the meeting were: A. H. Waites, Mimico, 1st Vice-President; J. T. Armstrong, Georgetown, 2nd Vice-President; D. G. Moffitt, Secretary-Treasurer; and Directors A. O. Leslie, Scarborough Township; John McMechan, Toronto Hydro, and J. A. Orr, North York Township.

Guest speaker at the banquet was Arthur Maloney, Q.C. M.P., Parliamentary Assistant to the Minister of Labour. Mr. Maloney attributed the somewhat higher incidence of unemployment in Canada this year largely to higher immigration, describing the educational program being carried out to help sustain employment over the winter months when it is, traditionally, at its lowest ebb. — *by Don Wright.*



HYDRO CHAIRMAN
JAMES S. DUNCAN



J. A. BLAY
Hydro's Director of Information



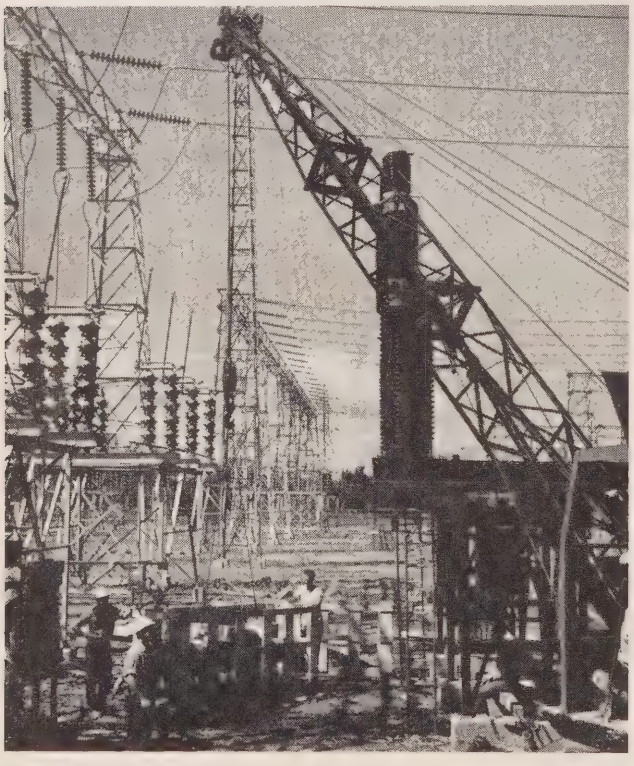
ARTHUR MALONEY
Q.C., M.P.



GORDON H. FULLER
O.M.E.A. President



△
MOUNTAINOUS aggregate stockpiles are a common sight on both sides of the river as the various structures of the power project will necessitate the placing of approximately 2.7 million cubic yards of concrete.



△
INSTALLATION of heavy equipment at Hydro's St. Lawrence Transformer Station which will feed power into the growing Southern Ontario System.

SYMBOLIZING Ontario's bustling economy — evident in the numerous construction "jobs" in progress from Ottawa to the Manitoba boundary — is the almost feverish activity along the valley of the St. Lawrence River. Here a vast army of men and machines is busy fashioning great new locks and canals to carry the commerce of the world to and from the heart of Canada and United States, while others push forward with the job of harnessing the river in the International Rapids section for the production of power.

Focusing attention on the many scenes of activity in the power project area during recent months, this selection of photographs furnishes at least a partial conception of the titanic task of taming the historic river.

The 1,640,000 - kilowatt development, being jointly constructed by Ontario Hydro and the Power Authority of the State of New York, will begin delivering power during 1958.

ST. LAWR



WITH WORK on the second section of Long Sault dam (right) underway in recent months, the entire flow of the river has been diverted through the first section. ▷



HEADWORKS of Hydro's Robert H. Saunders — St. Lawrence Generating Station provide an excellent vantage point for viewing construction of the adjoining powerhouses.

NCE "ON CAMERA"

TUG "nuzzles up" to a dredge engaged in constructing a new water intake near Morrisburg.



THIS 30-ton Euclid truck and 4½-cubic-yard electric shovel make a "powerful" team.



WORKERS nimbly scale the steel framework of one of the powerhouse structures.



IMPORTS AND EXPORTS

Hydro's First Vice-Chairman, W. Ross Strike, discusses Canada's trading status during address to O.M.E.A. District 7 delegates at Port Stanley

DELEGATES at this year's annual fall conference of O.M.E.A. District No. 7, heard W. Ross Strike, First Vice-Chairman of Ontario Hydro, issue a warning about Canada's economic future unless steps are taken to check the imbalance of exports and imports. Mr. Strike described the present situation as "grave," pointing out that foreign investment was acting as a "tranquillizer," which, if taken in increasingly large doses, could prove fatal.

Addressing some 75 delegates in the western Ontario vacation Village of Port Stanley, Mr. Strike said such over-investment by external elements could eventually lead to "economic serfdom" for Canada.

During his straightforward address, Mr. Strike said that the flow of foreign investment should not be discouraged, but active steps should be taken to allow both Canadian capital and management to share in these investments. There was also the danger of less exports by Canadian subsidiaries in competition with the parent company located outside the country.

To help rectify the situation, he proposed three measures. First, Canadians themselves should take a better look at the origin before purchasing manufactured goods. Secondly, Canada should encourage more manufacturing, and not be satisfied solely with producing raw materials. Third, Canada should balance imports against exports by importing more goods from countries doing business with Canadian firms, and thus make more Canadian dollars available for purchasing Canadian goods.

Watching Situation

Ontario Hydro is watching the economic situation very closely, Mr. Strike said. The Commission must purchase large quantities of United States coal and a premium rate for the American dollar would, he declared, "have an adverse affect on our finances."

A large delegation from Ontario Hydro attended the meeting, indicating the Commission's interest in and acknowledging the importance of the O.M.E.A.'s annual meetings. The Hydro delegation included Mr. Strike; Lt.-Col. A. A. Kennedy and D. P. Cliff, Commissioners; A. W. Manby, General Manager, and E. B. Easson, Secretary of the Commission.

Despite the lengthy and comprehensive agenda which the delegates set for themselves, interest was maintained at a high level throughout the afternoon by the efficient manner in which Chairman H. R. Henderson, Woodstock, conducted the program.

Commissioners' Duties

One of the highlights of the afternoon's agenda was a review, present-



MEMBERS of the new executive which will guide association activities for the ensuing year are (left to right): front row — G. E. Brown, Aylmer; H. R. Henderson, Woodstock, President; P. R. Locke, St. Thomas; back row — Murray Logan, Thorndale; C. E. Kirkby, Woodstock, and S. M. Emery, Parkhill.



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W. ROSS STRIKE Q.C., Ontario Hydro's First Vice-Chairman, reminisces with three members of District 7 during a post-luncheon recess. Left to right are: C. W. Hayball, Woodstock; Mr. Strike; F. T. Julian, Woodstock, and Reeve Lloyd Gurr, Port Stanley.

ed by Gordon Fuller, President of the O.M.E.A., of a recently revised booklet—prepared by Mr. Strike for use by municipal commissioners—entitled "Functions of a Local Hydro Commission." The booklet was originally issued in December, 1951, under the title "The Duties of a Local Commissioner."

Quoting from the foreword, Mr. Fuller pointed out that there had been a long-felt need for "something definite outlining functions of a local hydro commission." He went on to explain that, since Mr. Strike's pamphlet had been issued originally, circumstances and changes in legislation had prompted the Board of Directors of the O.M.E.A. to issue a second edition with a revised title to bring the subject up to date.

Frequency Standardization Program

In a brief "off the cuff" address to delegates following the luncheon, Hydro's General Manager, Mr. Manby, announced that the frequency standardization program in southern Ontario would be virtually completed by the end of 1958, with some remaining work in Toronto to be finished in 1959. Work on the whole program was proceeding on schedule, the speaker reported.

Directing attention to the recent announcements that Ontario Hydro would build thermal-electric stations at the Lakehead, Long Branch and in the Hamilton area, Mr. Manby also discussed the status of nuclear-electric power which, in its present stage of development, was not competitive in Canada. "We cannot afford to step into construction of a large nuclear-electric plant at the present time because the cost would be prohibitive.

Support Urged

He also reminded the O.M.E.A. members about the forthcoming "Live Better Electrically" campaign, which, he said, would stress the safeness and cleanliness of electricity as a modern economical energy medium. The campaign had been carefully planned with a view to increasing the load factor on municipal systems. All municipal commissions were urged to co-operate in the program.

In a hard-hitting talk on safety, Roy Beith, Manager and Secretary-Treasurer, Electrical Employer's Association, said that despite all the current talk about automation, the utilities "still have to rely on people to do a job.

"And remember — we have to keep these people alive to get the job done. This year, so far in Ontario, 20 people have died while working for the municipal utilities.

(Continued on page 26)



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O.M.E.A. PRESIDENT Gordon Fuller gives an outline of the association's revised booklet dealing with the functions and duties of local Hydro commissions.



REGISTRATION evidently wasn't too "painful" for this smiling group of delegates who were among the 75 attending the conference. ▷

Celebrating Electrically

LIGHTS ON...



△ BY ATTACHING DECORATIONS to a panel and then to the door, an artistic holiday doorway can be created quickly and easily. The reindeer should have small outdoor Christmas lights attached to his horns and in the bow around the neck. The door can be highlighted by a new, weatherproof outdoor spotlight.

AT LEAST once a year the average householder has a chance to express his individuality and decorative skill for the world to see and, perchance, to admire. He decides to decorate the outside of his house for Christmas . . . or enters a community Christmas lighting contest.

Anyone faced with the challenge of lighting the exterior of a home this year, and feeling a bit unsure about where to start, need have no cause for despair. Lighting specialists have some simple guides to help plan and analyze a display.

Surveying the house and grounds, it is a general rule that four main areas require decoration: The tree, windows, doors and general exterior (roof, lawn, shrubs). Take them one at a time.

The Tree

To outline a tree, one light per square foot is required. To deter-



▷ IN TRANSFORMING A HOME into a giant, lighted card, greetings from the whole family are extended in a long, oil-cloth lettered message stretched full width across the house. Simple cutouts of Santa and his reindeer can be attached to the garage door in some cases. Floodlights are aimed at the entire house front to bring out the festive greeting.

OR CHRISTMAS

mine exactly how many lights a tree requires, multiply its height by its width (measure at bottom of tree) by 1½. For example, if a tree is 6 feet by 4 feet, it needs (6 x 4- x 1½ =) 36 lights to outline it properly.

To achieve solid, mass lighting, double that number. Precautions should be taken not to exceed this figure. More than 72 lights on a 6' x 4' tree would make it gaudy.

The Tree

Not all Christmas trees are perfectly symmetrical cones. Some are short and squat; others are downright skinny. But their shortcomings can be disguised with a little lighting "know-how."

If a tree is short and stocky, hang strings of lights from the top in straight vertical lines. This makes the tree look taller. Good for all trees that aren't symmetrical, too. If a tree is thin, spiral two sets of strings, one running from left to right, the other from right to left. The result is a cross-hatch that gives a tree body. When a tree is tall and symmetrical, emphasize its line by hanging lights horizontally in a series of even loops or drapes.

Some tips: A tree purchased well before Christmas should have the bark removed from the bottom and be kept in a bucket of water. This reduces the fire hazard, and Mom won't have to spend her time picking off needles. When decorating the tree, work from the top down, never from the bottom up.

Windows

In decorating a window, its architectural design should be kept in mind, as well as the overall lighting treatment planned for the rest of the exterior and the decorations visible *through* the window. A large picture window at the front of the house can be a natural frame for an indoor Christmas tree. The obvious - - and best — lighting decoration is simply to outline the window with strings of light.

No interior tree visible through the window? Drape strings from a lighted star at the top center, down

(Continued on page 28)



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PINK LIGHTS on an all-white artificial Christmas tree add holiday glamor to any living room. Specialists suggest that the lights be attached so that the bulbs are in an upright position, giving the tree an "uplifted" appearance.



△

A LARGE WHITE Christmas tree in a picture window can do double duty as an indoor-outdoor holiday decoration. Blue bulbs on a white tree can be used with good effect. This dramatic indoor setting might be further accented by framing the exterior of the house with strings of red and green outdoor lights.

A. M. E. U. WORKSHOP

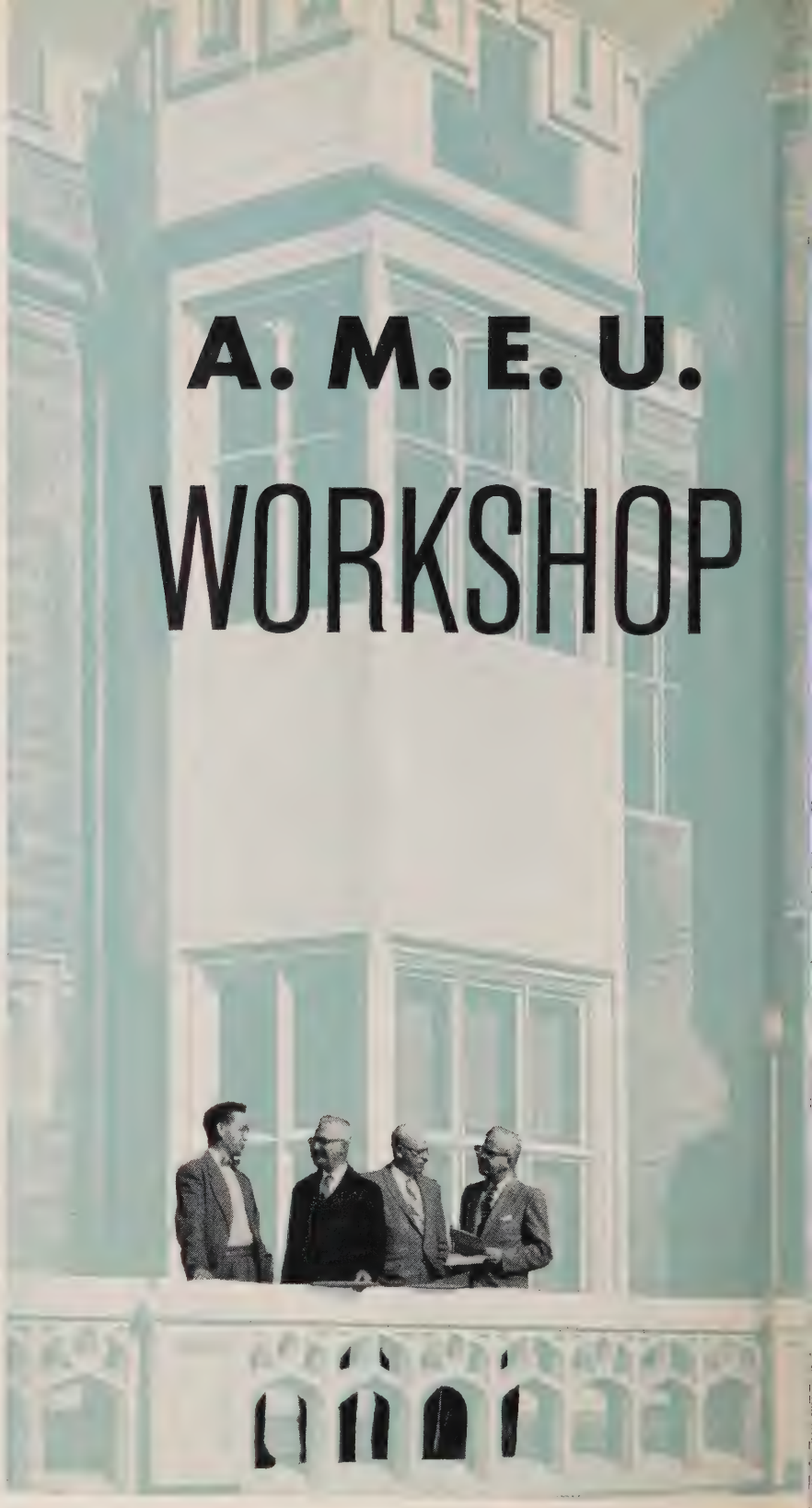
REPRESENTING a streamlined approach to 20th Century electrical utility problems, the first A.M.E.U. "Workshop on Distribution Practices," held in Toronto during the latter part of October this year was acclaimed a resounding success.

Some 300 managers, engineers and senior technical personnel, representing the municipal utilities and Ontario Hydro, participated in the "Workshop," and their enthusiastic discussions amply demonstrated its value.

Described as a real "work conference," the heavy agenda spread over a period of three days. In opening the discussions, Chairman John Torrance, Etobicoke Township, set the theme for the conference, and emphasized its importance when he stated that its purpose was to "improve the general education of utility managers and engineers."

Mr. Torrance explained that the special "Workshop" Committee, working as a unit of the A.M.E.U. Engineering Section, had planned the conference over a period of six months, consulting the chairmen of the various A.M.E.U. engineering sub-committees in choosing subjects for discussion.

Problems treated in the sessions, which began on October 24, at Ontario Hydro's Head Office, were those related to the electrical distribution methods followed by municipal utilities. A total of 14 papers on such subjects as system planning, street lighting, substations, metering and underground installations were presented by specialists in these fields from Ontario Hydro, various municipal commissions and manufacturing concerns.



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SUNLIT SOUTH TERRACE of Toronto's Casa Loma provides a striking background for this quartet of delegates. Left to right are Harry Cassan, Weston; Gordon Steiss, Kitchener; Gordon McNeely, Smith's Falls, and J. W. Young, Eastern Region, Ontario Hydro.

Technical Personnel Discuss Distribution Problems During Three-Day Conference in Toronto

G. F. Jannaway, St. Catharines P.U.C., introduced the first morning's program, which comprised two papers on the subject of system planning. Robert Jackson, Toronto Hydro, discussed "Fuse and Fuse Co-ordination," covering the various types of fuses in use, the particular qualities of each and various types of fusable elements used in their manufacture.

One of the highlights of the first session was a paper by E. M. MacKay, Ontario Hydro, entitled "Selection of Municipal Sub-Station Capacity." The subject led to a lively question-and-answer period during which several points in Mr. MacKay's paper were debated from the floor.

Street Lighting

A feature of the afternoon discussions was a demonstration of prismatic street-lighting equipment presented during the section of the agenda on street-lighting. The delegates were shown how, by the use of the latest types of prismatic lenses, illumination could be spread more equally and "spill" light could be reduced. A. R. C. Dow, Toronto Hydro, introduced a paper on "Typical Methods of Calculating Street-Lighting Intensity from Published Tables."

Taking part in a presentation entitled "Typical Erection Methods of Street-Lighting Luminaries," I. L. Bradley, Waterloo P.U.C.; Jack Alexander, Toronto Hydro, and Bud MacLaughlin, Windsor U.C., showed, with the aid of colored slides, how their utilities had tackled the erection of mercury vapor and fluorescent lighting equipment.

To "top off" the agenda on street-lighting methods, the "Workshop" delegates adjourned that evening to Toronto's lakeshore to inspect a display of approximately a dozen different types of street lights in common use around the province. Despite chill evening temperatures, approximately 75 of the delegates assembled at the rear of Ontario Hydro's Head Office building, and boarded a chartered bus to Queen's Quay.

The exhibit on street-lighting, prepared with the assistance of Toronto Hydro, provided the delegates with an opportunity to check the diffusion, light intensity and color characteristics of mercury vapor, fluorescent and incandescent street lighting of several different types.

Metering and Underground

Second-day sessions of the conference were held at Toronto's famed Casa Loma where the delegates were split into two groups, one on metering and one on the subject of underground installations. Approximately 100 attended the discussions on metering and took part in the program, which included

(Continued on page 18)



E. M. MACKAY, Ontario Hydro, illustrates his provocative paper on "Selection of Municipal Substation Capacity".



G. F. JANNAWAY, St. Catharines, was the chairman of the Workshop session dealing with system planning.

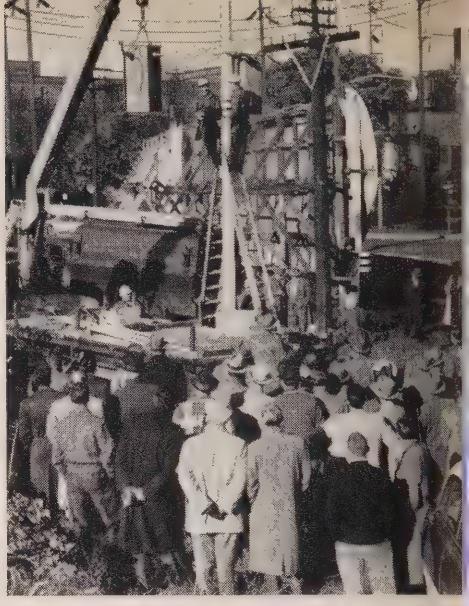


A. G. STACEY, Guelph, capably served as chairman during the discussions on metering.

DURING THE "METERING SESSION," delegates registered interest in a paper on factors influencing the economical use of power presented by N. J. Lake, Ontario Hydro (shown at the microphone). This session was held in the conservatory of Casa Loma.

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Highlight of the "Workshop's" concluding session was this demonstration of raising concrete poles by a Toronto Hydro line crew. The pole was erected, transformer connected, and the entire installation dismantled in less than 90 minutes.

a paper by N. J. Lake, Ontario Hydro, entitled "Factors Influencing the Economical Use of Power," and a second by J. M. Vanderleck, Ontario Hydro, on "The Relationship between Burden and Accuracy in Intrument Transformers."

In the afternoon, the metering section heard "The Application of Polyphase Meters for Various Loads," discussed by Douglas Bruce, Sangamo Co. Ltd.; "Government Regulations Regarding Polyphase Metering," by W. W. Finley, District Inspector, Department of Trade and Commerce; and "Self Study Courses for Metermen," by J. G. Steiss, Kitchener P.U.C.

Bernard Kellam, Ontario Hydro, opened the morning discussion on underground installations for approximately 90 delegates with a talk on "Types of Plastic Cables," illustrating his remarks with a demonstration of how certain types of plastics resist fire.

A paper on "The Load Capability of Cable Systems," by B. L. Brenner, Toronto Hydro, and a discussion entitled "General Aspects of Protection of Underground Systems — Short Circuit and Lighting," by William Mullin, Windsor U.C., completed the morning agenda.

In the afternoon, this group continued with a general discussion on substations during which the subject of "Supervisory Control," was discussed by W. H. Smith, Toronto Hydro; "Short Circuit Calculation," by Fred Iley, Ontario Hydro, and "Relay Protective Practices," by H. D. Higgins, Ontario Hydro.

Tour Control Centre

A special treat for about 35 of the out-of-town visitors in the evening was a tour of the Toronto Hydro Supervisory Control Centre at Eglinton and Duplex Avenues. Boyd Little, Chief Engineer, Toronto Hydro, conducted the group on an inspection of the intricate main control room, the transformer installations and various ancillary equipment.

The remaining "students" adjourned to the Royal York Hotel to take part in a guided discussion on several of the distribution topics introduced during the agenda of the previous two days. This "buzz" session provided an open forum for delegates to question the specialists who had contributed papers.

The "Workshop" reconvened for the final morning session at the site of an Ontario Hydro right - of - way near Davenport Road where approximately

THE "WORKSHOP" included an evening visit to Toronto's lakefront area where delegates inspected a display of various types of street lighting fixtures. The group appear to be focusing on one fluorescent lamp.



HIGHLIGHT for some 35 delegates was a visit to the Toronto Hydro's Supervisory Control Centre where they examined the ultra-modern equipment. Operator R. A. Shannon (right) explains the operation of a diesel standby unit control board to Keith Leeson, London (left), and Rudy Senyshen, Kitchener.



70 of the delegates watched a demonstration on setting concrete poles, hanging hardware and transformers. A Toronto Hydro line crew raised a pole, installed the equipment, and then dismantled the installation in 1½ hours.

Artificial Respiration



This program also included a demonstration of various methods of removing an injured man from a pole and applying artificial respiration.

Roy Beith, Electrical Employers' Association, described the work as a four-man team demonstrated the proper manner of carrying out this operation.

The "Workshop" was officially closed with a luncheon. The luncheon get-together marked the first formal social activity enjoyed by the delegates.

The success of the A.M.E.U.'s first "Workshop," was demonstrated by the fact that all sessions of the conference were held with a capacity attendance, and, wherever time permitted, delegates were encouraged to enter discussion on the various topics.

One valuable result of the careful planning for the conference was the distribution of complete copies of each of the 14 papers to each utility representative. Each will also submit to the committee, a questionnaire on which he may list his comments on the course.

"We feel that the printed lecture course will make a valuable addition to the libraries of the people who attended," Chairman John Torrance told delegates at the conclusion of discussions. "And your opinions regarding the first session added to what the committee members themselves have learned, will provide a firm basis for the planning and organization of future A.M.E.U. Workshops."

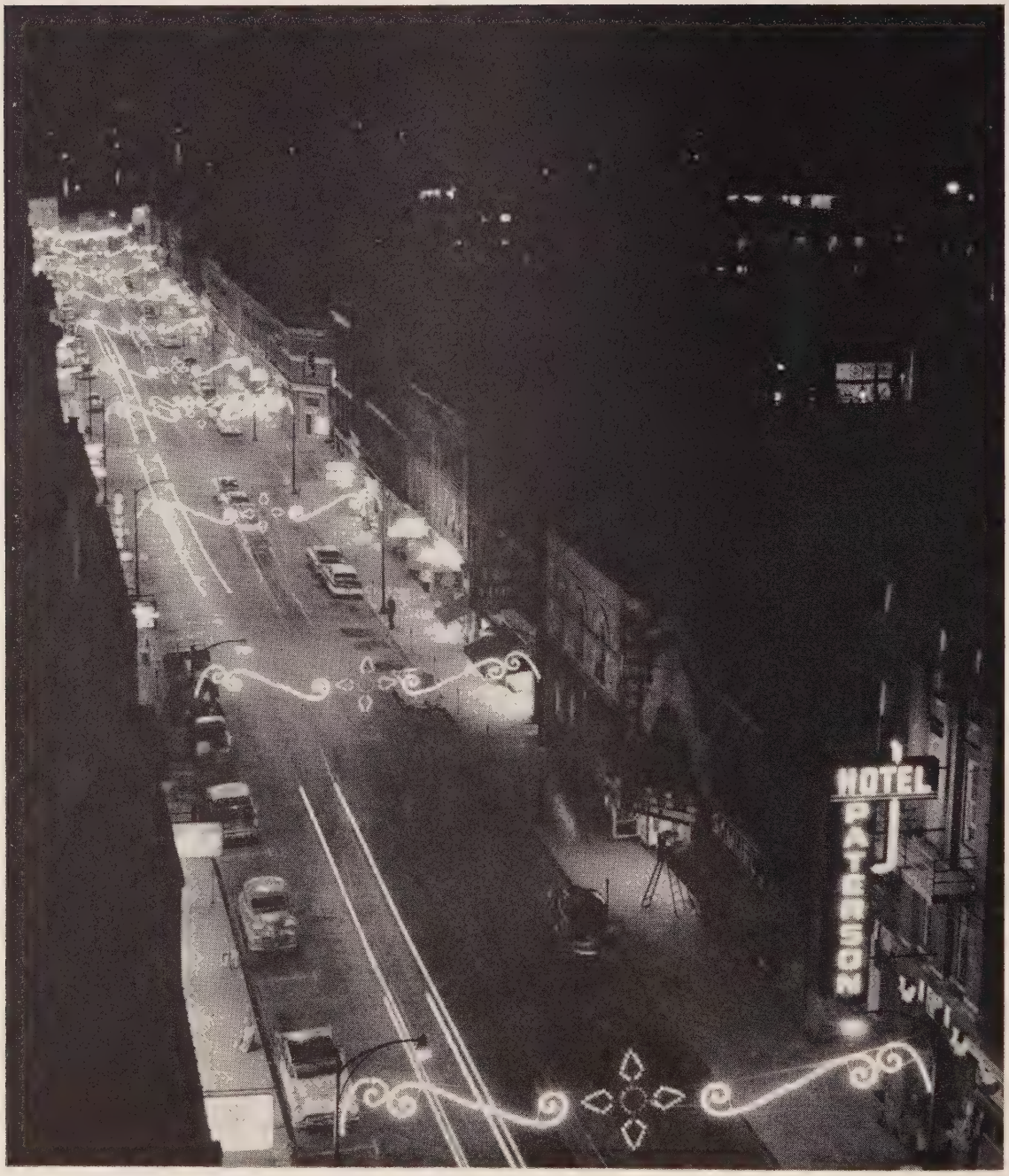
The Workshop committee included, besides Mr. Torrance: Harry Hyde, Assistant Manager, Toronto Hydro; Gordon Stacey, Superintendent, Guelph Board of Light and Heat Commissioners; Marino Fraresso, Distribution Engineer, Ontario Hydro, nad W. Ron Mathieson, A.M.E.U. Secretary-Treasurer.

—by Gary Smith.

OWEN SOUND DRESSES UP

OWEN SOUND'S main thoroughfare will be a blaze of light during Christmas season this year. The special decorative lighting system was installed by the Owen Sound P.U.C. staff.

DURING this year's centennial celebrations, a special arrangement of lights spelled out a welcome to hundreds of visitors.





Y OF LIGHT

At the New York World's Fair in 1939, Borden Company officials were horrified to find that invariably the first question asked of their guides at the Borden building exhibit was, "where is Elsie the Borden Cow?" For several years the company had been using cartoon-type pictures of Elsie in it's advertising, but it had never occurred to them, until that time, that the public thought there was a real live Elsie *and they wanted to see her!* Thus a live Elsie came into being, and proved to be a major attraction at "personal appearances" from coast - to - coast in Canada and the United States.

Recently at the Owen Sound Centennial celebrations, attended by over 50,000 visitors, a similar crisis arose when centennial officials found that one of the first questions asked them was, "where can we buy colored post cards of the street lighting effects?" Due to the length of time it takes to get such postcards produced there was none ready.

The spectacular decorative lighting was especially designed and made for the "Centennial" by Noma Lites Canada Limited, at it's Owen Sound plant, and installed by the Owen Sound Public Utilities Commission. The main street was turned into a night time fairyland, rivalling Broadway in splendor. It quickly became the main topic of conversation in the district. So many people came to Owen Sound in the evenings from the surrounding countryside that traffic in the city was bumper-to-bumper until long after midnight.

While the lights were installed primarily for the centennial celebrations, their tremendous drawing power for visitors has prompted the city authorities to keep them permanently for use each Christmas, during the tourist season and for spring and fall festivals.

This display is undoubtedly the first of its kind to be seen in Canada and, with the amazing results it has created in attracting visitors and their business to the city, may well be the beginning of a national trend to "light up" with decorative street lighting in other communities.

Purchase of the equipment for permanent use has been arranged co-operatively by the Retail Merchants' Section of the Owen Sound Chamber of Commerce and the city.

Design and Construction

To facilitate handling, the designs were manufactured in sections and joined together on location with standard couplings. The individual sections, such as spirals, diamonds, circles, etc., were made from lightweight ¼"-pipe, with brackets welded in place to hold the pin-type sockets employed. It is felt that, due to the construction, maintenance on the decorations from year to year will be negligible or non-existent. Using the same basic equipment, different overall effects may be created annually by switching the sections around.

Some problems were presented during the initial installation of the guy wires spanning the street, but these difficulties were quickly overcome by the co-operation of the building owners, who allowed the guys to be anchored to their buildings. This, of course, eliminated all strain and stress from the street lighting standards into which the lighting is connected and fed. Hanging of the designs from the spanning guy wire is a simple procedure, using special hangers and standard cable clamps supplied with the equipment.

The lamps used are standard C-9½ intermediate base, 10-watt Christmas lamps. Over 10,000 of these were used in the Owen Sound installation. Plans call for a completely different color scheme for this coming Christmas Season.

All in all, residents of the city are justifiably proud of their business section, and Owen Sound P.U.C. takes particular pleasure in the part it played to make Owen Sound the "City of Light." ■

URGES 100-AMPERE REGULATION

O.M.E.A. District 8 delegates hear plea for mandatory utility ruling

MAINTENANCE of system loads and trouble-free service for domestic customers can be achieved "simply and effectively" by the installation of 100-ampere service in any new single dwelling house.

Declaring that this was not "dictatorial," Manager Harry Foy, Electric Service League of Ontario, told delegates during this year's annual convention of O.M.E.A. District 8 at Tilbury that approximately 20 Ontario municipal electrical utilities had already put such a regulation into effect. Several others had signified their intention of taking similar action.

Dealing with the anticipated competition from natural gas confronting electrical utilities. Mr. Foy reported that a recent survey of 3,001 houses being built in the metropolitan Toronto area had revealed a total of 1,584 gas water heater installations in these new homes.

"All of these will have gas-fired furnaces, and undoubtedly a large percentage will have gas ranges. The water heaters alone represent a loss of 1,200 or more kilowatts of connected load to the electrical utilities." he stated.

Low Rates

Ontario, as one of the leading per capita users of electric energy, enjoyed "extremely low rates." This achievement was particularly "remarkable" when compared with the substantial increases in the prices of virtually every other commodity in the last decade. It had been possible only through the maintenance of a high load factor. The building of domestic load — "the most important load on a municipal system" — was due to the availability of electrical servants "at a cost which we can all afford."

However, the many advantages possible in the modern home are being threatened, in numerous instances, by house builders, Mr. Foy warned.

"In over 65 per cent of the new homes being built, the electrical system is almost identical to that installed in houses built during the 1920's."

In view of the common use of many high wattage appliances "it is only reasonable to demand that a 100-ampere service, and an absolute minimum of eight branch circuits be installed in any house being built today," Mr. Foy claimed.

Small Extra Cost

The additional cost of a 100-ampere over a 60-ampere service "is so small that it should not affect the selling price of a house."

"It is to be hoped that every utility in Ontario will enact this regulation . . . the other approaches have been tried for years without too much success," he stated in conclusion.

Guest speakers during the convention luncheon included W. Ross Strike, Hydro's First Vice-Chairman, and A. S. Griswold, Industry Assistant to the President, Detroit Edison Company.



GUEST SPEAKERS at the District 8 meeting included, left to right: Harry Foy, Toronto; O.M.E.A. President Gordon H. Fuller, and F. G. York, Ottawa, who are discussing a model of an atomic power plant with A. S. Griswold, Detroit Edison Company.

Mr. Griswold, during his address, gave a full-scale review of Detroit Edison's participation in the construction of the Enrico Fermi Atomic Power Plant at Lagoona Beach, Michigan, U.S.A.

Mr. Strike presented a brief review of Ontario Hydro's power development program. Dealing specifically with the 13 projects either authorized or under construction at present, the First Vice-Chairman pointed up the fact that the Commission's construction program made provision for progressively larger increases in power resources for the next five years and more.

Turning to Hydro's participation in studies relating to Canada's nuclear power development plans, he declared "I am confident that you are going to be very proud of the Hydro team working on this project at Chalk River."

He expressed confidence in the ability of Ontario Hydro and the associated municipal utilities to keep pace with the province's electrical requirements.

"I do not anticipate that it will be any more difficult to meet our objectives than it has in the past."

Completion in 1958

Reporting briefly on the progress of the Commission's frequency standardization program in southern Ontario, he forecast completion of the project in 1958, with the exception of an area in Toronto scheduled for 1959.

Extending greetings to the delegates, representing municipalities in an area roughly bounded by Chatham, Windsor and Sarnia, O.M.E.A. President Gordon H. Fuller, described the association as "one of the meshing gears" of the province-wide Hydro organization.

Other speakers included F. G. York, Ottawa, representing the A.M.E.U., and D. P. Cliff, Ontario Hydro Commissioner and O.M.E.A. Secretary-Treasurer.

The morning business session, conducted by First Vice-President R. C. Warwick, Blenheim (in the absence of President John T. Barnes, Sarnia, through illness), focused attention on several matters of interest. Chief item was a resolution from Sarnia Hydro-Electric Commission. The resolution requested Ontario Hydro, in negotiating future power contracts with direct customers, to keep power rates in close balance with other industries in the same area, particularly those industries within the boundaries of an adjacent municipality. Delegates approved

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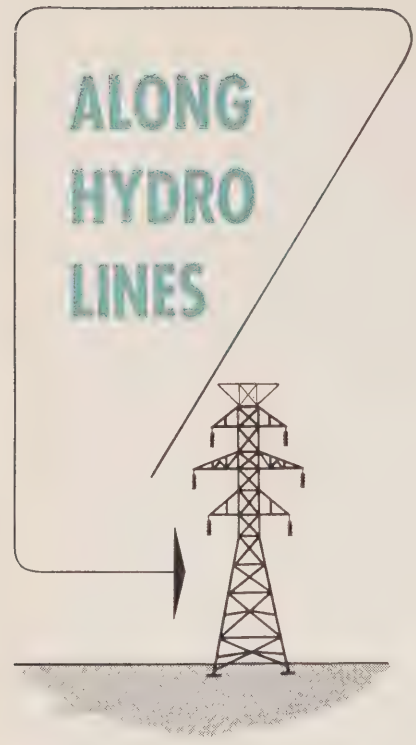
UNANIMOUSLY ELECTED to the 1958 executive (left to right): T. A. Cada, St. Clair Beach; President R. C. Warwick, Blenheim; T. C. Odette, Tilbury; Gordon H. Fuller, Windsor, and W. B. Ford, Blenheim.

NO HARD FEELINGS HERE! Delegates approved the invitation extended by Howard Heaton, Harrow (right) to hold next year's convention in that community. He received the congratulations of R. C. Fenner, Riverside, who extended a similar invitation on behalf of his municipality.



ON BEHALF OF THE O.M.E.A., Ontario Hydro Commissioner D. P. Cliff, Secretary-Treasurer (right), hands an album of photographs to R. S. Reynolds, Chatham. The album was a memento of the presentation of an A.M.E.U. honorary membership to Mr. Reynolds earlier this year.





Morrisburg Curling Rink Officially Opened

Morrisburg's new Curling Club building, built by Ontario Hydro, was formally turned over to the club on November 15 this year. The presentation was made by K. H. Candy, Commission Architect, in the presence of of A. C. Casselman, M.P., and F. M. Cass, M.P.P. The former curling rink has been taken over by Ontario Hydro, and will be dismantled prior to raising of the water level for the St. Lawrence Power Project.

Sandwich West Township Erects New Building

A new utilities building is being erected by the Sandwich West Township Hydro System at a cost of more than $158,000. The contract was recently awarded to a local firm of contractors.

The cost of the new building is to be financed partially by a debenture issue, $100,000 worth of which has been purchased by local residents.

CANADA'S LARGEST THERMAL UNITS ORDERED

Ontario Hydro announced recently that orders, valued at more than $10 million, had been placed with a British firm for the two largest turbo-generators ever purchased by a Canadian utility.

The orders, awarded by tender to C. A. Parsons & Co. Ltd., Newcastle-upon-Tyne, were carried by Hydro Chairman James S. Duncan when he left for Britain during November in his capacity as deputy leader of the Canadian trade mission to the United Kingdom.

The trade mission, headed by Hon. Gordon Churchill, Canada's Minister of Trade and Commerce, included some 50 Canadian industrialists and business representatives, who have toured Great Britain in recent weeks as part of the Canadian Government's plan to increase trade with the United Kingdom. H. J. Sissons, Hydro's Assistant General Manager-Services, was a member of the mission.

The new generators will have a capacity of 300,000 kilowatts each, and are the first of those required for the two recently-announced 1,800,000-kilowatt thermal generating stations planned for the industrial Toronto-Hamilton area during the next 10 years. Preliminary investigations are now under way at the proposed Long Branch and Hamilton area sites.

It is expected that both of these units will be installed at the Long Branch site, the first for service in 1961 and the second for 1962. Orders are being placed at this time because it requires almost four years to manufacture, deliver, install and test units of this size.

O.M.E.A.-A.M.E.U. VISITORS

Power from the St. Lawrence project will soon be a reality. This fact was made abundantly clear to a party of executive officers of the O.M.E.A.-A.M.E.U. during a recent visit. Accompanied by W. Ross Strike, Hydro's First Vice-Chairman, and Commissioner D. P. Cliff, representatives of the 55-man contingent alighted from their chartered bus near the international boundary line (as shown in the accompanying photograph). Here they inspected construction progress at the Robert H. Saunders-St. Lawrence Generating Station, which will commence feeding power into the Southern Ontario System in 1958.



Appoint K. D. Taylor Consumer Service Engineer

Appointment of K. Denton Taylor as Consumer Service Engineer for the East Central Region has been announced by E. G. Gurnett, Regional Manager. Mr. Taylor succeeds F. C. Adsett, who has retired. Mr. Taylor was educated at Cobourg, Ontario and the University of Toronto. He graduated in 1939 with a B.A.Sc. degree in electrical Engineering.

He joined Ontario Hydro upon graduation and has served in various capacities in the operations, municipal engineering and consumer service fields. From 1948 until his recent appointment, he was Consumer Service Superintendent of the West Central Region with headquarters in Hamilton.

Second Vice-Chairman on Bridge Committee

A five-man Ontario committee has been appointed by Prime Minister Leslie M. Frost to study U.S. proposals for a new international bridge and toll route in the Queenston area that would link up with the Queen Elizabeth Way.

Heading the committee is Minister of Highways, Hon. James N. Allan. Other members are: Labor Minister, Hon. Charles Daley; Planning and Development Minister, Hon. William Nickle; Hon. Ray Connell, Minister without Portfolio and Second Vice-Chairman of Ontario Hydro, and R. A. Farrell, executive officer in the Prime Minister's office, who will act as committee secretary.

The committee will meet a New York State committee to study proposals outlined by Governor Averell Harriman of New York. Mr. Harriman has proposed to locate the new international bridge in the Lewiston-Queenston area. Premier Frost said that the meeting of New York and Ontario committees would work out a solution agreeable to both jurisdictions concerning traffic problems affecting the area.



NEW HAMBURG SESSION

A RECORD attendance of some 130 municipal utility representatives featured the fall meeting by the Grand Valley Metermen's Association. Held in New Hamburg Memorial Community Centre, the meeting featured three important papers on topics of particular interest, as well as films presented through the courtesy of the Canadian General Electric Company. Among the speakers were (left to right): N. J. Lake, Ontario Hydro, who discussed factors influencing the economical use of power; A. R. Parrish, Hamilton; J. H. Seymour, Toronto, who described the work of Ontario Hydro's Research Division, and R. J. Brown, Toronto, who dealt with certain aspects of thermal demand meters. Delegates commended the hospitality and numerous courtesies extended during the session by representatives of New Hamburg P.U.C.

Hydro Improvements For Aylmer

An $18,900 program of improvements and extensions to the street lighting and electrical distribution systems is being undertaken by the Aylmer Public Utilities Commission. Negotiations are continuing with Ontario Hydro for the purchase of rural lines within Aylmer. Early in the coming year, Ontario Hydro, which has been occupying quarters at the utility headquarters, will be moving its offices north of the town. The Aylmer Commission will take over the vacated premises, providing more accommodation for its trucks and equipment.

Stouffville Chairman, A. E. Weldon, Resigns

Chairman of Stouffville Public Utilities Commission since its inception, A. E. Weldon has resigned owing to ill-health. Reeve Elmer Daniels, who is also a member of the commission, expressed regret at the necessity for Mr. Weldon's action and for the loss of his services. A former reeve and councillor, Mr. Weldon served for several years on the committee of council, which administered Hydro service in the community until the formation of the utilities commission in 1952.

URGES 100-AMPERE REGULATION

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the motion, while formally accepting the invitation from Harrow to hold next year's meeting in that town. Secretary - Treasurer Charles S. Phelps reported a paid membership of 38 out of 41 municipalities in the district association.

Concluding the successful gathering, the report of the nominating committee was unanimously endorsed, with Mr. Warwick being elected as President. The following officers were also chosen to serve on the 1958 executive: T. A. Cada, St. Clair Beach, First Vice-President; T. C. Odette, Tilbury, Second Vice-President, with J. L. Graham, Leamington; George Mickle, Ridgetown, and Gordon H. Fuller, Windsor as Directors. W. B. Ford, Blenheim, was appointed Secretary-Treasurer. — *by B. L. Graham.*

IMPORTS AND EXPORTS

(Continued from page 13)

If we don't take action soon to prevent the continuance of this sort of thing, we will have forfeited our position as the recognized leaders in the electrical utility field."

Mr. Beith said that the responsibility for linemen and employees working with "hot lines" is that of the commissioner and the manager. "It is up to you people," he said, "to provide the leadership and the inspiration that will give utility employees the incentive to adopt necessary safety precautions."

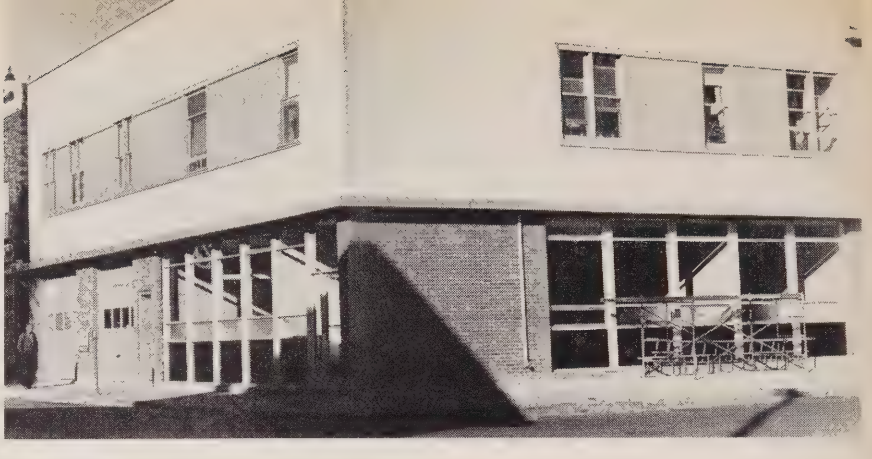
Mr. Beith said the Electrical Employer's Association had arranged two-day safety courses for foremen in various Ontario centres. He outlined the reasons for establishing the course, and the methods by which safety will be taught.

Pensions and Insurance

P. R. Locke, St. Thomas, presented a paper on the problems of providing a pension and insurance plan for utility employees. He outlined the plan set up by The Municipal Hydro-Electric Pension and Insurance Committee for the utilities, and gave an interesting point-by-point comparison with similar employee pension and insurance programs.

H. R. Henderson of Woodstock was re-elected President of District 7 and will head the following executive for the year 1958: First Vice-President, P. R. Locke, St. Thomas; Second Vice-President, G. E. Brown, Aylmer; Directors: Campbell Calder, Q.C., London; Murray Logan, Thorndale, and S. M. Emery, Parkhill, and C. E. Kirkby, Woodstock, Secretary-Treasurer.

— *by Gary Smith.*



TRENTON P.U.C. HEADQUARTERS AFTER COMPLETION OF RENOVATION PROGRAM.

TRENTON PROUD OF UTILITY BUILDING

"You'd never know the old place now" is a familiar phrase in Trenton in describing the remodelled Trenton Public Utilities Commission headquarters, for the building can bear comparison with the most attractive and modern offices in Ontario.

Designed to provide additional space for several departments handicapped by cramped quarters, the remodelling involved a complete rearrangement of offices to promote staff efficiency and customer convenience.

The expansion of Trenton and the area served by the commission, which had placed a strain on the former office facilities, was one of the major factors in the decision to renovate the utility headquarters, shown in the accompanying photograph.

A diagonal service counter in the public business office imparts an atmosphere of spaciousness, while customer comfort is evident in the upholstered wall seats provided in this section.

Side walls and the ceiling of the general office are finished in pastel gray, while the back wall is in light tan. The lighting fixtures are simple and of modern design.

An attractive brick and glass front surmounts the exterior of the ground floor office, while stucco has been used for the remainder of the frontage.

The second storey is finished in yellow stucco, with upper windows set in brown panels, presenting a pleasing exterior appearance. At first floor level, advantage has been taken of a projecting ledge to mount spotlights, which illuminate the building at night.

Said Trenton Chairman Clifford A. Baker recently: "We are more than pleased with our new offices."

NAMED TO NEW POST

I. C. Ingimundson has been appointed Executive Assistant-Administration Branch of Ontario Hydro. Mr. Ingimudson was formerly Administration and Service Engineer with the Frequency Standardization Division. The administrative duties associated with Mr. Ingimundson's former position have been assumed by the Director of Frequency Standardization, while the Consumer Service and Planning Sections are now the responsibility of W.D. McKenzie, in addition to his duties as Operations Engineer.

Industrial Policy Set By Preston P.U.C.

Preston Public Utility Commission recently established a policy regarding the supply of power to industries. The commission decided it would supply up to 300 kilowatts at 575 volts. Demands ranging from 300 to 500 kilowatts will be supplied at either four kilovolts or 27.6 kilovolts, depending upon which is available at that particular distribution point. If demand exceeds 500 kilowatts, power will be supplied at 27.6 kilovolts only.

This means some industries requiring from 300 to 500 kilowatts will be able to get power directly from the town's electrical system, but all requiring more than 500 kw will have to provide their own transformers, unless some special arrangement is made with the local utility.

ONTARIO HYDRO SCHOLARSHIPS

In recognition of distinguished achievement in the engineering and technical professions, Ontario Hydro this year has awarded 12 scholarships at three Ontario universities and three other educational institutions.

Inaugurated in 1952, the scholarships are also presented for the purpose of stimulating enrolment in university and other courses relating to the Commission's operations.

Three awards of $300 each were presented at the University of Toronto to: 1st year—D. R. Miller, Toronto (Engineering Physics); 2nd year—L. G. Japp, Mount Dennis (Electrical Engineering); 3rd year—W. D. Reid, Dungannon, Ont. (Chemical Engineering).

At Queen's University, Kingston, three Hydro Scholarships of $300 were won by 1st year—Robert E. Martilla, Lockerby (Sudbury) Ont. (Applied Science); 2nd year—Umeo Nakano, Hamilton (Chemical Engineering); 3rd year—Lloyd E. Parker, Armstrong, Ont. (Engineering Physics).

At the University of Western Ontario, London, the three Ontario Hydro awards of $300 each were presented to: 1st year—R. Keith Cross, London (Engineering Science); 2nd year—Gerald K. Vanslyke, R.R.2, Dorchester, Ont. (Engineering Science); 3rd year—Ross Judd, London (Engineering Science).

At Lakehead Technical Institute, Port Arthur, the award of $300 went to Donald Coulson, R.R.1, South Gillies, Ont. The winner of the $100 award at the Royal Military College, Kingston, was Cadet J. B. Franklin, Rosetown, Sask., while at Ryerson Institute of Technology, Toronto, the $200 scholarship was awarded to Frank Little, Toronto.

Myles Emans Heads Metermen

Western Ontario Meter Association members, meeting at Stratford recently, elected Myles Emans, Chatham, as their President, succeeding Wesley Arend, Windsor.

Some 80 delegates heard Robert Brown, Toronto, discuss thermal demand meters. In welcoming the delegates, W. F. Nickel, Chairman of the Stratford P.U.C., suggested that electrical engineers and metermen should break down their technical vocabulary into everyday terms when speaking publicly. Mr. Nickel expressed the view that electrical bills could eliminate a great many technical headings. A paper on the field inspection of power metering equipment was presented by T. H. Lewis, supervising meter engineer of Ontario Hydro's Western Region.

PERSONNEL APPOINTMENT

John P. Chipman was recently named Personnel Officer at Ontario Hydro's East Central Region. Mr. Chipman, a graduate of the University of Toronto, who has been associated with Hydro since 1947 in a number of responsible positions, was previously Personnel Officer for Sir Adam Beck-Niagara G.S. No. 2. Mr. Chipman succeeds P. T. Siebert, who retired recently.

Essex Combines Hydro and Water Departments

Hydro and water departments of Essex Public Utilities Commission, which were formerly operated under separate management, both reporting to the commission, have been combined under one management. Louis Cunningham, Superintendent of the Hydro department for 15 years, has resigned, and Norman Hill, former Superintendent of the Waterworks Department, has been named General Manager of the combined utilities. George Weldon has been named Hydro foreman, while Marvin Matlock will supervise the operation of the waterworks system.

LIGHTS ON...FOR CHRISTMAS

(Continued from page 15)

to the lower corners. Such a design makes a "framing" pattern for lighted candles or wreaths inside the window. If a window is regulation size, two strings of lights with a star at their apex form a pleasing frame for a lighted wreath, tying the entire window decoration into one unit. Extend the lights to the outer edge of the shutters for a wider lighting pattern.

In the case of a two-storey home, interest and sparkle can be added by filling second-storey window boxes with "lighted flowers" and boughs of greens. To make the flowers, lighting specialists suggest fastening petal-like reflectors and placing them behind colored bulbs to give a more realistic effect.

Either 25-watt or 10-watt bulbs can be used in outdoor sockets. Prop the bulbs in position with wire. Complete the boxes with feathery sprays of Scotch pine.

Doors

Since Christmas is traditionally a time for getting together, the question of making doorways places of glowing welcome should be considered. A simple but professional result can be achieved with new strip lighting and household aluminum foil. Crush long strips of foil to cover the door frame and staple in place. Strips of colored lights can be tacked on to this "foil frame." The front door itself can be decorated with jolly snowmen cut from wrapping paper. For background, pine branches and white-tipped cones tied with red ribbons to the inner front door may be used.

Another idea: Compliment friends on their choice of Christmas cards by using them as part of a festive holiday doorway. Tack them helter-skelter to a door and "wrap" the door itself as a gift package with wide plastic or oilcloth streamers to which a large bow is stapled. Finish off with a 150-watt projector spotlight in an outdoor-type holder placed several feet away to focus attention on the arrangement.

Garage doors often present a decorating problem. If a garage adjoins the house or is located near enough to be part of the decorating theme, it can provide a perfect background for a cut-out figure of a jolly Santa. Hide a 150-watt outdoor spotlight in a nearby tree, experts advise, and aim it on St. Nick.

General Exterior

The house and lawn — there's where an amateur decorator can really let himself go. Whether it's a stealthy Santa climbing down the chimney or a smiling snowman guarding the doorway, they can provide just the right highlight for an outdoor display.

Illuminated pieces made of plastic, metal or glass, are available in the stores and range from ornaments a few inches high to lighted figures several feet tall for use in the yard or for mounting on the sides or roof of the house. Use flood and spot lamps to emphasize them. But the lamps should be concealed so that only the beam is visible from the street.

Outlining the pleasing architectural lines of a home with string lighting is another suggestion. For greater effectiveness, lay three separate strings of outdoor lights on the ground and stagger them so that sockets and bulbs are about six inches — rather than the usual 18 inches — apart. Tape them together with weatherproof electrical tape. If planning to use them in the same location next year, hang the strings from permanent screw eyes or hooks. Tape wire to prevent rubbing against hooks, which should be close enough together to keep wires from hitting the house.

An upstairs porch can become the high point in outdoor decorations. Try placing a masonite or commercial wallboard cut-out figure of Santa on a ladder securely anchored to the roof. A 150-watt PAR spotlight will highlight the arrangement. If a home has an outside area unbroken by windows, take advantage of it! Use one of the commercial "Santa with sleigh and reindeer" cut-out now on the market. Silhouette — and enlarge — it with a 150-watt projector floodlight.

Symmetrical shrubs or graceful bushes planted close together, or in hedgerows, may be effectively decorated with joined string sets strung horizontally. Trees and bushes growing separately look best when decorated individually.

One note of caution: While taking part in the gayest season of the year, the home-owner should remember that he is dealing with an unknown — electricity.

Christmas tree electric lighting equipment bears a Canadian Standards Association label marked for indoor or outdoor use. Be sure not to use a set labelled for indoors when decorating outside a home. Follow wiring instructions carefull to prevent the possible overloading of circuits. Inspect all cords, as well as other holiday lighting equipment, before each season's use. Repair or replace if damaged — for safety's sake! ■

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1958 JANUARY 1958

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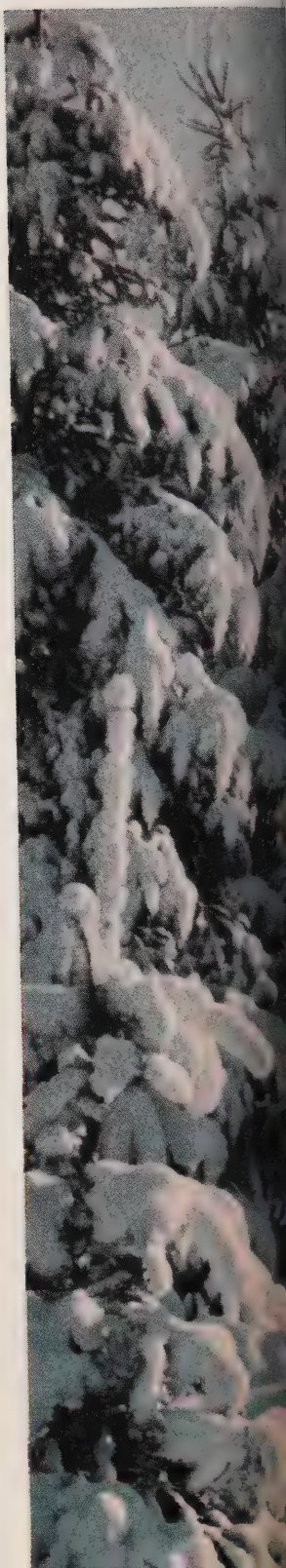
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All good wishes
for the
Holiday Season




ONTARIO HYDRO
News
JANUARY, 1958

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ONTARIO HYDRO NEWS

JANUARY, 1958 VOL. 45, No. 1

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COVER PHOTOGRAPH

Depicting the Commission's integrated Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2 (right and left, front) and the associated pumping-generating station (back) our cover photograph this month helps to explain why the Niagara area ranks as one of the world's greatest sources of hydro-electric power (for further information see page 2).

THE YEAR OF THE SPUTNIK

VIEWED in retrospect, 1957 might accurately be described as "Sputnik-year." The launching of satellites far beyond the earth's orbit and the firing of ballistic missiles were scientific achievements of undoubted significance. But it was quite apparent in several instances that these accomplishments tended to further emphasize the undesirable climate of international tension existing at many times during recent months.

Amid this uneasy atmosphere it was gratifying to realize, however, that Canada's name was being linked with events which clearly demonstrated that logic and a desire for peaceful solutions still prevailed in the world.

The harmonious solidarity of the Commonwealth was particularly evident in the heart-warming welcome, which Canadians gave their young Sovereign, Queen Elizabeth, when she came to open her Canadian Parliament last October. This was the first occasion in history when a reigning British monarch personally officiated at such a function. Equally noteworthy was the hearty and genuine greeting accorded the Queen and her husband, Prince Philip, a few days later, when they paid a visit to our friendly neighbor, the United States, as the representatives of this nation.

Then, too, Canada's significant role in world affairs was manifested in the announcement that a noted Canadian, Hon. Lester B. Pearson, had been chosen as the 1957 recipient of the Nobel Peace Prize.

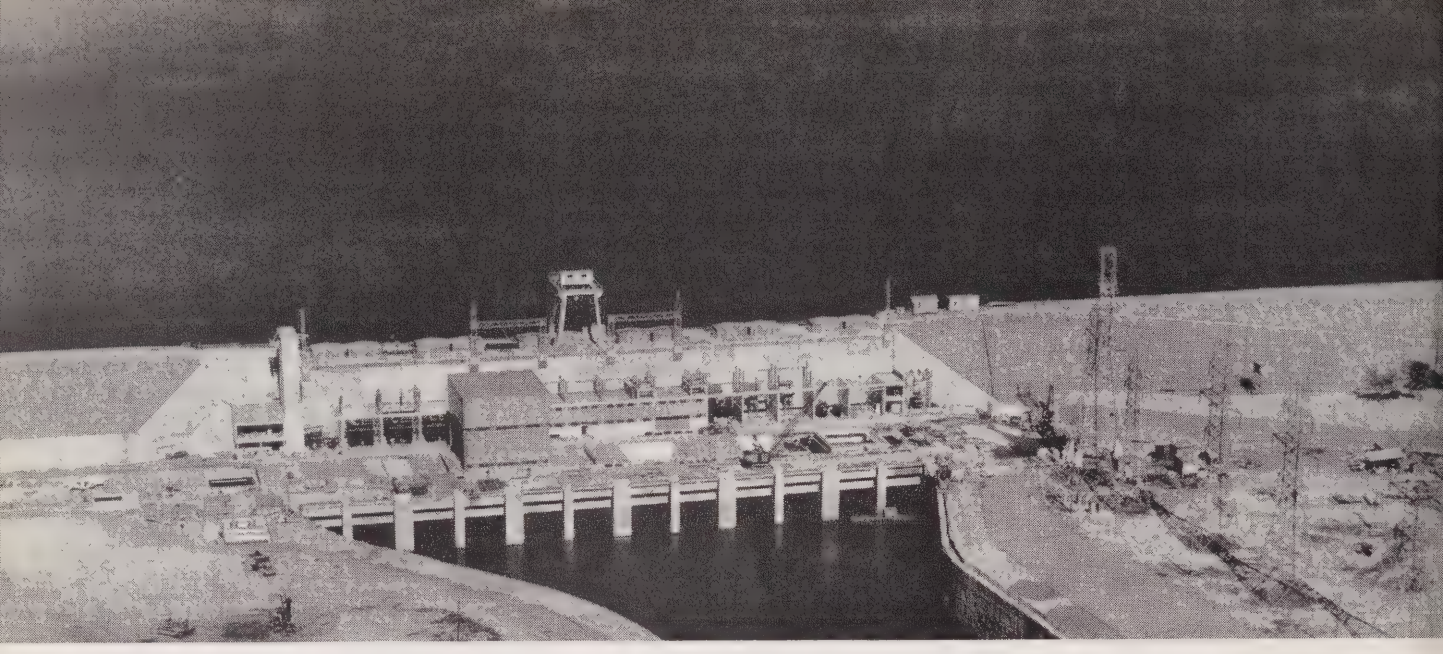
As the year drew to a close, the attention of many citizens was being focused on the activities and progress of a group of prominent industrialists and business executives during a tour of the United Kingdom as members of a Canadian trade mission.

At this early date it is difficult, in fact virtually impossible, to accurately assess the full impact of this mission, which was headed by Canada's Trade Minister, Hon. Gordon Churchill, with Ontario Hydro Chairman James S. Duncan, as deputy leader.

The fact that some 1,400 persons sought interviews with members of the delegation during their stay in London, England alone, provides grounds for the hope that this effort to stimulate peaceful commerce between the two Commonwealth partners was of far-reaching importance. And in the strengthening of Canada's economic links with Britain there appears to be a basis for the confidence that the historic ties of mutual interest and joint action will be reawakened and immeasurably fortified.



RESEMBLING a mining operation rather than a hydro-electric project, the excavation of a 10,400-foot-long tunnel is one of the major phases of construction at Ontario Hydro's Silver Falls project on the Kaministikwia River. *(For further details about this unique, north western Ontario development turn to page 8).*



"TURNABOUT"

Ontario's Niagara Falls area, already world-famous as the best vantage point for viewing the twin cataracts, has added a 750-acre, man-made lake to its list of attractions.

But this huge Ontario Hydro reservoir is more than just a tourist spectacle. Its specific function is the storage of water to help meet the peak electrical requirements of a power-hungry province.

An integral feature of the Sir Adam Beck-Niagara Generating Station No. 2 Project, this body of water, covering an area two miles long and one mile wide, has a stellar role in the operation of the associated pumping-generating station.

Unique in Ontario Hydro engineering annals, the reversible-type units of this new, 170,000-kilowatt station — operating as pumps — lift water from an adjacent power canal during low power demand periods, storing it in the reservoir. Then, during peak demand periods, the water does a "turnabout" with the units operating as generators. In the process, the water is discharged back into the power canal leading to the integrated Sir Adam Beck-Niagara Generating Stations No. 1 and 2. This permits the fuller use of the generators in these two plants. Incidentally, the conversion from pump-to-generation operation is made by simply moving a switch.

Newsmen inspecting the Niagara project recently, accompanied by the Commission's First Vice-Chairman, W. Ross Strike, and Chief Engineer, Dr. Otto Holden, saw three of these units in operation. Three more units are being installed to bring the station up to its full capacity within the next few months.

In addition to viewing the pumping-generating station, the group also inspected the Sir Adam Beck-Niagara No. 2 plant where installation of four additional generators has been under way in recent months. Two of these units were placed in service during December, 1957, and the remaining two generators are scheduled for operation later this year.

Actual construction of this development was started within a matter of weeks following ratification of the Niagara Diversion Treaty in October, 1950. This treaty, in addition to making the maximum amount of water available for power development purposes, provides also for the preservation of the scenic beauty of this renowned mecca by permitting no less than 100,000 cubic feet of water a second to flow over the Falls during daylight hours of the tourist season nor less than 50,000 c.f.s. at any other time.

To make maximum use of the water available under the terms of the treaty, Hydro started work on the novel pumped-storage scheme in August, 1953.

AERIAL VIEW of the pumping-generating station with a section of the reservoir also visible in the background. Three of the six pumping-generating units are now in service, with three more scheduled for service progressively this year.

Now helping to meet the peak electrical requirements of Ontario customers, Hydro's pumped storage scheme is regarded as a "revolutionary" project

GENERATORS

It consists essentially of a canal connecting into the present canal system, the pumping - generating station, and an artificially-created reservoir.

Reversible Flow

Basically the pumped-storage canal is a reversible flow channel, which conveys water from the main canal during the pumping cycle in which the reservoir is being filled, and discharges it back when storage is being withdrawn to increase output at the main plants. The best location and design of this canal was determined by a series of model tests. The location adopted, just upstream from the "cross-over" of the two canals, which convey water to the Sir Adam Beck plants, produces the minimum energy loss in the system of channels. It also permits the best flow distribution. The model tests determined the canal entrance dimensions necessary to incur the least loss under either inflow or outflow conditions.

The canal is approximately 1,450 feet long, and has a normal width of 140 feet, with a flaring section widening to about 650 feet to conform with the length of the pumphouse. The average depth of rock cut was 58 feet with a maximum at the pumphouse end of 80 feet. About 20 feet of overburden covered the rock.

During the pumping cycle, the normal depth of water in the canal will be about 23 feet and the velocity 8½ feet per second. During the generating cycle the depth will be about 26 feet and the average velocity about 6¼ feet per second with the turbines operating at "best gate."

Headworks Structure

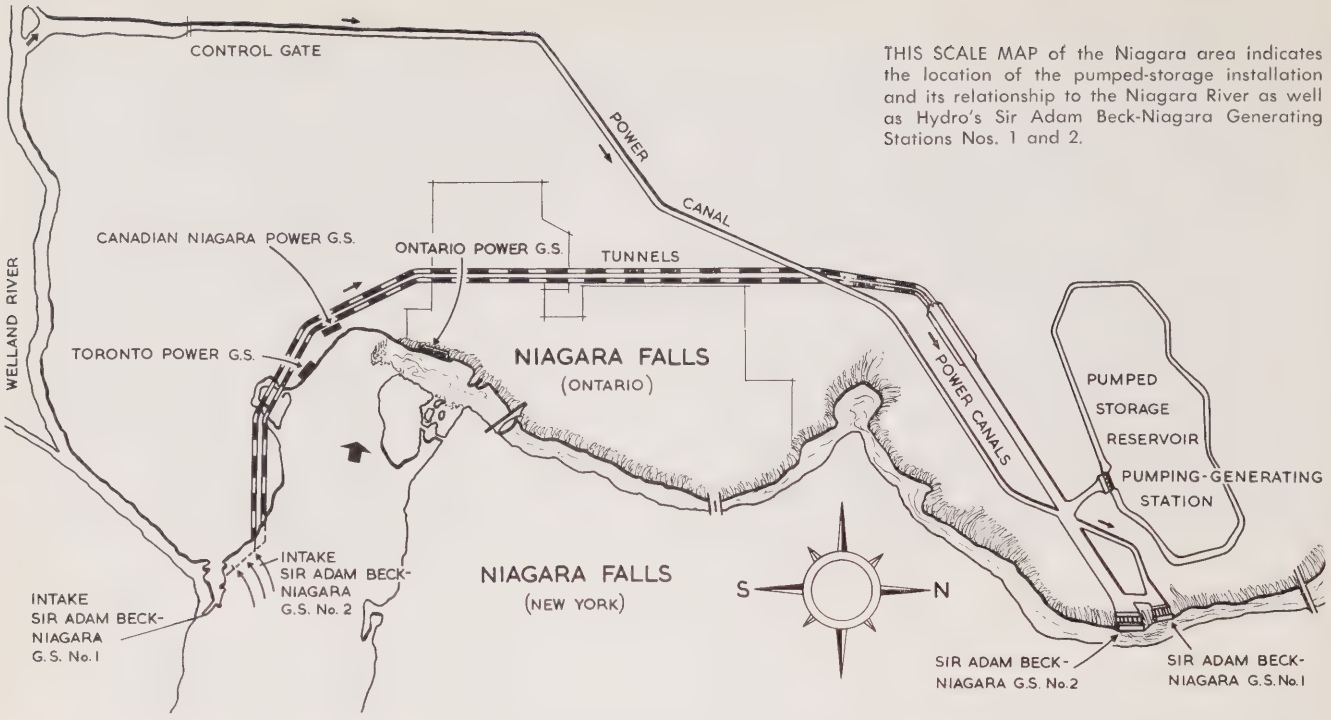
The power plant consists of a concrete headworks structure and the powerhouse itself, which is directly downstream from and integral with the headworks. This structure, together with a short concrete gravity section at the west end, forms a dam section between the ends of the enclosing reservoir dykes.

The distance from the face of the headworks to the end of the draft tube is about 200 feet and the overall length of the powerhouse is 448 feet. An erection bay about 120 feet long is provided at one end for servicing the units. The units in this plant are 74 feet centre to centre, and are the largest in physical size to date in the Ontario Hydro system. This will, however, be exceeded at the St. Lawrence project, where the centre to centre distance will be 80 feet.

(Continued on page 4)



HEADWORKS STRUCTURE is an integral part of the pumping-generating station. The units of the outdoor type plant are situated under protective coverings, eliminating the necessity of a conventional superstructure.



THIS SCALE MAP of the Niagara area indicates the location of the pumped-storage installation and its relationship to the Niagara River as well as Hydro's Sir Adam Beck-Niagara Generating Stations Nos. 1 and 2.

The headworks structure is somewhat similar to that of the Sir Adam Beck No. 2 plant. It contains the conventional trash racks and steel headgates, which may be closed by remote control in an emergency. A 50-ton headworks gantry is provided for removal of racks and gates.

Particular attention was given to the design of the various water passages in the plant, the headworks transition, penstock, scroll case, and draft tube, due to the reversible flow conditions. The rate of expansion of the area in the water passages was limited to ensure uniform reduction in velocity. This results in increased efficiency due to recovery of velocity head in the flowing water.

The pumping-generating station is a modified outdoor type, and is the first of this type to be constructed by Ontario Hydro. This type of powerhouse was first introduced in the southern part of the United States, but in recent years plants of this type have been constructed in Quebec where climatic conditions are more rigorous than those encountered in the Niagara area. A saving of about $2,000,000 has been effected by the elimination of the conventional superstructure, which normally provides the enclosure for the generating units. It is of interest to note that the powerhouse of the Robert H. Saunders-St. Lawrence Generating Station will be of similar design.

The equipment being installed at this plant is of particular interest constituting a new development in the field.

Many turbine suppliers in Canada, the United States and in Europe undertook extensive research programs to develop a type of unit suited to the particular needs of the project. Through the construction and operation of several models, the English Electric Company developed a completely new type of pump-turbine.

Each of the six reversible feathering-blade, Francis-type pump-turbines are directly connected to a motor-generator. Operating as pumps, these units discharge 4,000-5,000 c.f.s., under a variable head of from 90 to 60 feet respectively; for this condition the motor is rated at 55,000 horsepower. With this equipment it is possible to fill the reservoir in a period of about 7½ hours.

As turbines, these units are rated at 40,500 horsepower under a head of 80 feet, and the discharge for best efficiency will vary between 5,600-3,200 c.f.s. with a head range of 80 to 38 feet (Speed 92.3 rpm). If desired, the turbines may be operated to give a constant discharge of about 4,100 c.f.s. over the full head range.

The generating units are being operated at 13,800 volts with transformation directly to 230,000 volts, and are connected to the system at the present switchyard serving the main plants. When operating in the reverse direction, the main leads and such other controls and protective circuits as are necessary are reversed.

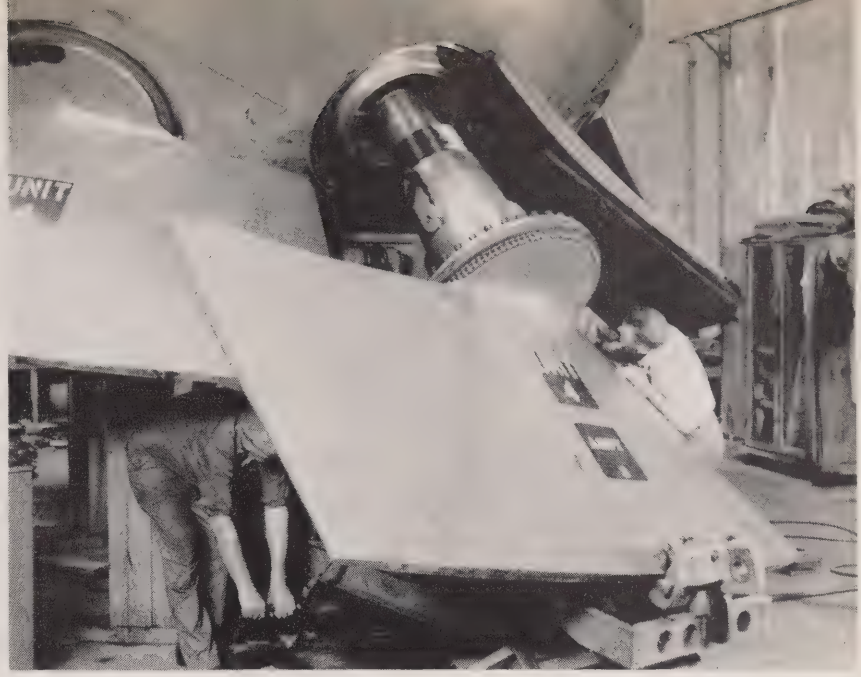
Usable Storage

On the basis of 25 feet of drawdown, the pumped-storage reservoir will provide useable storage of about 15,500 acre-feet. The reservoir is formed by an embankment, essentially

a rockfill mass supporting an impervious clay core for watertightness. This type of embankment was chosen because clay deposits were available in the vicinity, and the rockfill could be obtained economically from the excavation of the canal for the Sir Adam Beck G. S. No. 2.

The dyke varies in height from 15 to 65 feet, and has a total length of about 24,300 feet. It involved the placement of 1,370,000 cubic yards of rockfill, 740,000 cubic yards of filter material, and 800,000 cubic yards of compacted clay for the impervious core.

Scheduled for completion later this year, this important and revolutionary hydro-electric project is noteworthy also since it enables the Commission to make provision for four additional units at the Sir Adam Beck No. 2 station. With 12 units already in service, this mammoth plant, in company with the allied pumping-generating station, will have a total installed capacity of 1,370,000 kilowatts – constituting one of the largest hydro-electric developments in the world. ■



ASSEMBLY of one of the reversible, feather-blade Francis-type pump-turbines, which were specially-designed for the novel Niagara project.

ANOTHER VIEW of the pumping-generating station with a section of the dyke and reservoir on the left; the associated switchyard and the headworks structures of the integrated Sir Adam Beck Nos. 1 and 2 stations are also visible (upper right).



TRADE TALKS

CLOSER economic and political ties have been established between Canada and Great Britain by the Canadian Trade Mission which returned from a tour of the United Kingdom late in December, 1957.

Headed by Hon. Gordon Churchill, Canada's Minister of Trade and Commerce, as leader, and Ontario Hydro Chairman James S. Duncan, Chairman of the Dollar-Sterling Trade Council, as deputy leader, the mission comprised some 55 Canadian industrialists and prominent business executives.

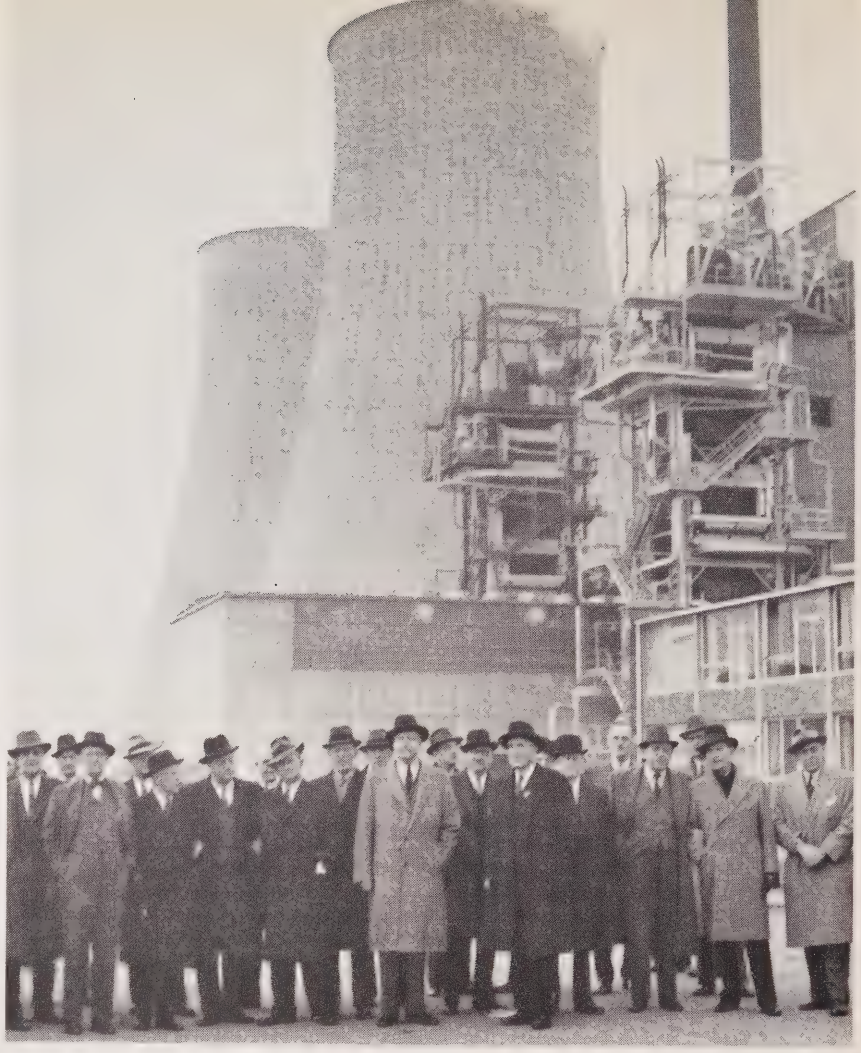
Upon his arrival in England, Mr. Duncan set the tone for the whole undertaking by announcing that a $10 million order had been placed by Ontario Hydro with a British manufacturer for two turbo-generators for thermal generating stations planned for the Toronto-Hamilton area.

The Canadian delegation, implementing the wishes expressed by the Prime Minister, Rt. Hon. John Diefenbaker, that Canada increase imports from Great Britain, spent nearly four weeks touring some 100 British plants. The members of the mission represented a broad cross-section of the economic life of Canada, and were, in the truest sense, the men with the "answers." Ontario Hydro was also represented by H. J. Sissons, Assistant General Manager – Services.

Sound Basis

Particular stress was laid on the underlying, but undoubtedly, key objective of the Mission: that of putting Canada on a sound economic basis for the future – rather than on the more obvious and frequently mis-

(Continued on page 29)



COOLING TOWERS of Calder Hall form an impressive background for several members of the Canadian Trade Mission visiting the world's first large-scale nuclear-electric station.



INSPECTING a British steel mill in England's Midlands country, members of the Canadian delegation, including Ontario Hydro Chairman James S. Duncan (right foreground) with H. J. Sissons, Hydro's Assistant General Manager – Services and Kenneth McGregor, Under-Secretary, Industry and Manufacturers' Department, British Board of Trade, on the left, watch with interest as a workman operates one of the large machines in the plant.

THE LAST HOUSE



SOME 30 MONTHS of work ended for Hydro's house-moving crews when this handsome brick home — House No. 525 — was placed on its new foundation at Morrisburg during December, 1957. Machines like this one were a familiar sight during this phase of the St. Lawrence rehabilitation program.

When House No. 525 was lowered gently into Morrisburg's new north-eastern subdivision early in December, the event marked the final operation in Ontario Hydro's mammoth house-moving program on the St. Lawrence and another step toward the completion of the largest and most intricate rehabilitation program of its type ever undertaken in Canada.

Officials of Ontario Hydro and the Town of Morrisburg looked on as W. Ross Strike, Hydro's First Vice-Chairman, gave the signal to lower the house onto its foundation. The brief ceremony brought to a close 2½ years of work during which Hydro crews moved 525 houses from the 20,000-acre area to be affected by the higher water level of the St. Lawrence Power Project.

Figures show that in the relocation of Iroquois 178 houses were moved in the village itself and in neighbouring Matilda Township. Another 109 houses were relocated in Morrisburg and area, 102 in establishing the new town of Ingleside and 125 in Long Sault, the second new town. Another 11 moves were involved in Cornwall and Osnabruck Townships.

The ceremonies held to signal the final house-moving operation coincided with a second event of special significance to Morrisburg itself. Mr. Strike officiated again as Christmas lights were turned on to celebrate the official opening of the new, 45-unit Morrisburg Shopping Centre.



W. ROSS STRIKE turns on the lights to declare Morrisburg's new shopping centre officially open. Flanking Hydro's First Vice-Chairman are H. A. Jackson, Rehabilitation Engineer, left, with Rev. J. Maxwell Allan, Morrisburg, George H. Challies, Chairman, Ontario-St. Lawrence Development Commission and Reeve George Beavers, Morrisburg, on the right.

This handsome, four-block shopping plaza replaces the town's old main street shopping section which formerly straddled No. 2 highway. It is the second and largest of four shopping centres to be built by Hydro as part of the rehabilitation program. The Iroquois centre was opened in May, 1957, and smaller but equally modern centres are scheduled to be inaugurated soon in Ingleside and Long Sault.

The new Morrisburg shopping plaza contains parking space for 335 cars, and has more than 31,000 square feet of sidewalks. Store fronts are finished in aluminum and glass, and pedestrians have access to the stores from an attractive tiled mall leading from the street. ■

Hydro's construction forces open another new "front" in northwestern Ontario at the Silver Falls project

"KAM" COMMUNIQUE



by Don Wright

ADVANCING rapidly in the relentless struggle to meet the demands of power-hungry northwestern Ontario, Hydro's engineering and construction forces have launched an offensive on still another front.

At Silver Falls on the scenic, serpentine Kaministikwia River, just 30 miles from the Lakehead cities of Port Arthur and Fort William, work is moving forward on a project, which will add some 45,500 kilowatts to Hydro's resources by 1959.

The Kaministikwia River has its source in Dog Lake. From this point it winds a crooked and often turbulent course for 50 miles to Lake Superior. This short river, with the long but euphonious Indian name, meaning "the river with short bends and many islands," was once an important highway for fur traders plying between Fort William and Fort Garry on the Red River south of Lake Winnipeg. Because it forms part of the huge, 9,500-square-mile Lake Nipigon drainage area, the Kaministikwia is blessed with a remarkably steady flow, making it ideal for the development of power.

Majestic, 128-foot high Kakabeka Falls, located some 20 miles downstream from Silver Falls, is the most spectacular of the river's numerous cataracts, and has been a tourist attraction for many years, as well as a source of electric power for more than a half-century. First power was developed here near the turn of the century. The present, 25,000-kilowatt Kakabeka Generating Station was built by the Kaministikwia Power Company in 1906, and acquired by the Commission in 1949.

Lacking, perhaps, some of the glamor associated with Hydro's epic undertakings on the English and Winnipeg Rivers, where the fight to overcome the incredible handicap imposed by isolation and rugged terrain was in itself a major achievement, the Silver Falls development has, nevertheless, required similar self-sufficient camp facilities. Then, too, its engineering and construction aspects are unique among the five other hydro-electric projects now underway in the Northwestern Division.

Insofar as terminology is concerned, the work at Silver Falls might be mistaken for a major mining development, since much of it consists of mucking and drilling a tunnel and shaft. The project takes its name from Silver Falls, the largest and most impressive of a series of falls and rapids in the tortuous, five-mile section of the Kaministikwia above the site of the powerhouse. Thus Nature herself has decreed the excavation of a 10,400-foot-long tunnel – rather than a dam – to effectively develop the full head of 350 feet available here.

Essentially, the project will consist of an intake structure at Dog Lake; a vertical shaft and the tunnel, which connects the two lakes and completely circumvents the river channel in this section, and a powerhouse located at the downstream end of the tunnel on Little Dog Lake. It will also be necessary to build a surge

(Continued on page 10)



COLD WEATHER means little to the construction and engineering crews living at Hydro's attractive Silver Falls campsite on the shore of Little Dog Lake. Some of the 400 staff members commute daily between the campsite and the Lakehead cities of Fort William and Port Arthur.



KAMINISTIKWIA RIVER rises in Dog Lake and flows into Lake Superior at Fort William.



THIS OPEN-CUT section leading to the tunnel portal necessitated the excavation of some 60,000 cubic yards of rock. Crews are using the "full-face" technique in drilling the tunnel to connect with a 360-foot shaft at the intake end.



ORE CARS, loaded with rock, with the 100-horsepower "mucking" machine in the background, are used in excavating the 10,400-foot-long tunnel. Working on a 'round-the-clock schedule, crews are extending the excavation about 30 feet a day.

NARROW-GAUGE diesel trains haul material to the disposal area on Little Dog Lake. Some 90,000 cubic yards of rock will be dumped into the water area (left) during the excavation.

tank 180 feet high, perform some repair work on existing block and sluice control dams at Dog Lake, and excavate a section of the river below Little Dog Lake to increase the operating head of the plant.

The Silver Falls project was authorized early in 1957, but in order to meet the early "in service" date, men and equipment were rushed to the job in record time so that much has already been accomplished. Following the usual project construction pattern in the north, access roads were the first consideration. In this case it was necessary to improve 10 miles of existing road from Highway 17A at Kaministikwia Village to the power site, and to construct six miles of new road within the project area.

"Aluminum City"

The essential road network has now been completed, and on a plateau overlooking Little Dog Lake another of Hydro's ingenious "aluminum cities" has come into existence.

Superficially, the camp differs little in appearance with those established at the Whitedog and Caribou Falls



projects, but the long rows of autos in the parking area indicate the proximity to other centres of civilization. Indeed, several of the workers commute daily between the project and the Lakehead Cities while the few teen-agers in the colony have been able to make arrangements to attend outside high schools. The absence of a camp hospital is further evidence of ready communication with the outside world. At present there are approximately 450 personnel on the project, and the labor force is not expected to exceed this figure by more than 100 at any time.

The actual tunnelling operation is making satisfactory advances. Preliminary investigations, including diamond drilling and seismic surveys, established the tunnel grade and alignment, as well as the location for the surge tank. This latter structure will serve as a safety valve to relieve "back-up" pressure in the tunnel should it be necessary to shut down the plant suddenly. The return flow from the tank will bring the station back up to the peak load in less time when operation is resumed.

Tunnel excavation is proceeding from the powerhouse in the upstream direction. By January 1, approximately 1,000 feet of tunnel excavation had been completed. Work will continue in this direction for the entire length to meet with the 310-foot vertical shaft which will be sunk from the site of the Dog Lake intake structure. When the 18-inch concrete lining is in place, the tunnel will have a finished diameter of 14½ feet. This phase of excavation will involve the removal of about 100,000 cubic yards of rock, and construction men estimate that almost a half-million pounds of dynamite will be required for this purpose.

"Full-Face" Excavation

In spite of the most careful preliminary planning and preparation, the unknown still looms large in every major underground operation. In the final analysis, methods and progress will depend on actual work experience and rock conditions. At Silver Falls the full-face technique, entailing excavation of the complete circumference of the tunnel as the work progresses, is being followed. In order to meet an exacting schedule, construction crews are working in three, 'round-the-clock shifts. Each shift completes one cycle of mucking, scaling, drilling, loading and blasting in a prearranged sequence.

The tunnelling methods at Silver Falls resemble, in many respects, but on a much smaller scale, those employed in the construction of the tunnel phase of the giant, Sir Adam Beck-Niagara Generating Station No. 2 project. Drilling is carried out by means of a specially-designed jumbo rig, mounting six drills and travelling on narrow gauge tracks within the tunnel. Two diesel locomotives and a string of mucking cars travel on wider gauge tracks between the tunnel face and the rock disposal area. An electrically-operated mucking machine for loading the cars completes this fully-mechanized and efficient operation.

The two rock dams and two concrete sluice control dams, previously mentioned as requiring repair, are located near the outlet of Dog Lake. They were built to increase the storage reservoir for Kakabeka Falls G.S. long before Hydro acquired the property, and they must be maintained to continue this function for the new development. Dog Lake has a storage capacity of 578,000 acre-feet, and the discharge required for the Silver Falls station will be 1.800 cubic feet a second.

In appearance, the Silver Falls powerhouse will resemble Hydro's Aguasabon plant at Terrace Bay on Lake Superior, which was completed in 1948. Automatic, supervisory equipment located at Port Arthur Transformer Station No. 1 will control operation of the new plant, whose output will be fed into Hydro's expanding Northwestern Division system over 9.2 miles of 115,000-volt, steel tower transmission line. ■



OVERBURDEN is being stripped from the site of the intake structure at Dog Lake. A vertical shaft will be sunk to connect with the tunnel which is now being excavated.

SANDWICH BRANCHES OUT

Youthful township utility

completes

new headquarters



ALTHOUGH a comparative "infant" in the electrical field, Sandwich East (Twp.) Public Utilities Commission recently put on seven-league boots with the official inauguration of its new headquarters building.

The ceremonies marked an important climax in the life of the youthful utility, which was "born" in October, 1956. Actually electrical service was introduced in the township on July 24, 1922, customers being served by Ontario Hydro through its Windsor Operating Area. Two years ago the township council, consisting of Reeve Bernard Roy, Robert McDonald, Ulric Brunet and Emil Seguin, initiated the plan to purchase the electrical system from the Commission. After receiving ratepayers' approval to borrow $1,050,000 for the acquisition of the distribution facilities in the township, the new Hydro Division was combined with the local waterworks department, which had been operating since 1931, to form a public utilities commission.

Crowded Quarters

Within a few months it was evident that the rapid growth of the utility was overtaxing its crowded quarters. Ambitiously confident of future expansion, the local commission authorized construction of a new office and service building.

Thus on November 29, 1957, some 150 provincial and municipal officials gathered to applaud as Hydro's First Vice-Chairman, W. Ross Strike, cut the traditional red ribbon across the main entrance to the handsome civic structure. Proudly presiding as Master of Ceremonies at the civic luncheon and dedication, Reeve Roy was assisted by Commissioners Frederick Myers and Victor Renaud, while General Manager H. B. Mattson introduced Mr. Strike.

Operations Reviewed

Reviewing Ontario Hydro operations during his brief luncheon address, Hydro's First Vice-Chairman described the heavy responsibility imposed on Ontario Hydro in meeting the province's demands for electric energy, which he said had been growing at the rate of five to six per cent a year.

"In the past few years we have been trying to build up the reserve capacity of our system with little success," Mr. Strike pointed out in commenting on the various phases of the Commission's expansion program.

Turning to the future, he said that Ontario Hydro planned to increase its system capacity each year until sufficient reserve capacity is attained. Declaring that it was not feasible to proceed with the development of power from nuclear sources at present, the speaker voiced confidence that "we will be in the nuclear field between 1967-1970."

In extending congratulations to the Sandwich East Commission, he described its progress as a "remarkable achievement." The new utility headquarters indicated the efficient type of administration, which had promoted expansion of the community as a whole, Mr. Strike continued.

"It is heartening, indeed, to see a public body providing facilities for better service to its customers and for the comfort and convenience of its employees, which after all, is a matter of supreme importance."

Technical Assistance

Greetings were also extended on behalf of the O.M.E.A. by President Gordon H. Fuller, while R. S.



REEVE BERNARD ROY (right) and Hydro's First Vice-Chairman, W. Ross Strike, jointly officiate in the cutting of the ribbon across the main entrance during the inauguration ceremony.



PANELLED WALLS and modern lighting equipment are outstanding features of the attractive main business office.

EFLECTING RAPID GROWTH in Sandwich East ownship, the new utilities building has a frontage of 80 feet with ample space for future expansion.

SERVING as a guide during the public inspection of the new building, Miss Beatrice Smith discusses the utility's new telephone switchboard with Gordon McHenry, Consumer Service Engineer, Western Region.



Reynolds, Chatham, assured the support of the A.M.E.U. in solving technical problems, which might arise in the future. Following a brief address by R. M. Laurie, Manager, Hydro's Western Region, the formal ceremonies concluded with brief dedicatory prayers by Rev. Nathaniel Cole and Very Rev. J. Z. Noel.

During the social period, the guests availed themselves of the invitation to inspect the modern premises.

First of its type in the area, the new building tastefully combines several utilitarian features with decorative design. This is particularly evident in the exposed structural steel frames, which blend with the main color plan.

A one-storey, brick-faced structure, the new headquarters has a frontage of 80 feet and a depth of 120 feet. It houses offices and stores, as well as a garage with accommodation for three of the commission's fleet of trucks. The antenna on the roof is part of the utility's two-way radio system for communicating with its service vehicles. The stock rooms are designed to accommodate every conceivable type of utililty material, and the

(Continued on page 27)

R. S. REYNOLDS, Chatham (standing), extends greetings on behalf of the A.M.E.U. to Reeve Roy, utilities chairman. This pleasant exchange took place in the new board room with other commission representatives smiling their approval. On the left are: Secretary-Treasurer M. J. St. Pierre and General Manager H. B. Mattson. Commissioners Victor Renaud and Frederick Myers are seated (right).



PATHWAYS TO POWER

CHAPTER IX

SWITCHING, TRANSFORMER AND DISTRIBUTING STATIONS

by D. A. Mitchell*

Transmission lines, stemming from the generating stations, carry electric power at high voltages to the vicinity of the distribution centres. Voltage reductions are then carried out until finally the power is adapted to the use of the ultimate customer.

In the case of long distance transmission of large amounts of power, voltages are first stepped down from 230,000 to 115,000 volts. Further transformation to 46,000 volts, 27,600 volts or 13,800 volts is required for the network supply voltage to major customers such as large industries or municipalities. These customers, in turn, carry out further transformation to provide a satisfactory voltage for the operation of machinery, street railways, street lighting and the many domestic uses of electric power.

Involved in the process of transmitting and distributing power are switching stations, transformer stations and distributing stations.

Switching stations have no transformation facilities, and are used for mid-point switching of long lines to ensure better control and protection of circuits. They also provide a convenient arrangement for diverting power to various distributing centres.

Transformer stations step down the high transmission voltages to lower transmission voltages when urban or other distribution areas are approached. Main transformer stations usually have two high power voltage levels — 230 kv. and 115 kv. — and a low power voltage level of 46 kv., 27.6 kv. or 13.8 kv.

If the power market is in the vicinity, it is practical to supply power at the station low voltage level. Thus, a transformer station may also function as a distributing station.

Distributing stations have ratings up to a maximum of 20,000 kva, but for small towns and rural areas the range is usually between 600 kva and 6,000 kva. These stations are of simple design, with fuses for protection of the transformers on the high voltage side, and either fuses or metalclad switchgear for controlling the power feeders. In urban centres, this equipment may be housed in a bungalow-type building, designed to harmonize with the surroundings. Stations are unattended, and, where oil breakers are used in the supply feeders, reclosing of the breakers after an outage is automatic. Many of the outages are of a transient nature and service is restored with only momentary interruption to customers. If the trouble is of a permanent nature, the breaker is locked out, and the trouble must be cleared before the feeder can again be energized.

Major Equipment

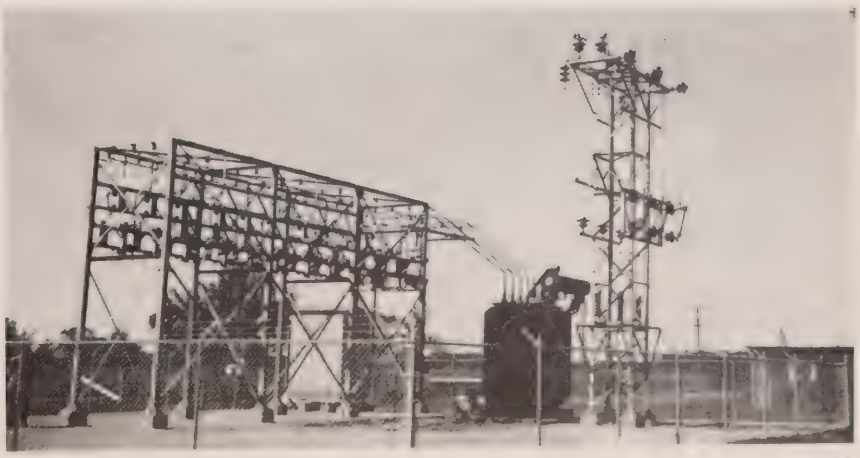
The major equipment in use at Commission stations consists of:

Transformers where the voltage at which electric power is transmitted

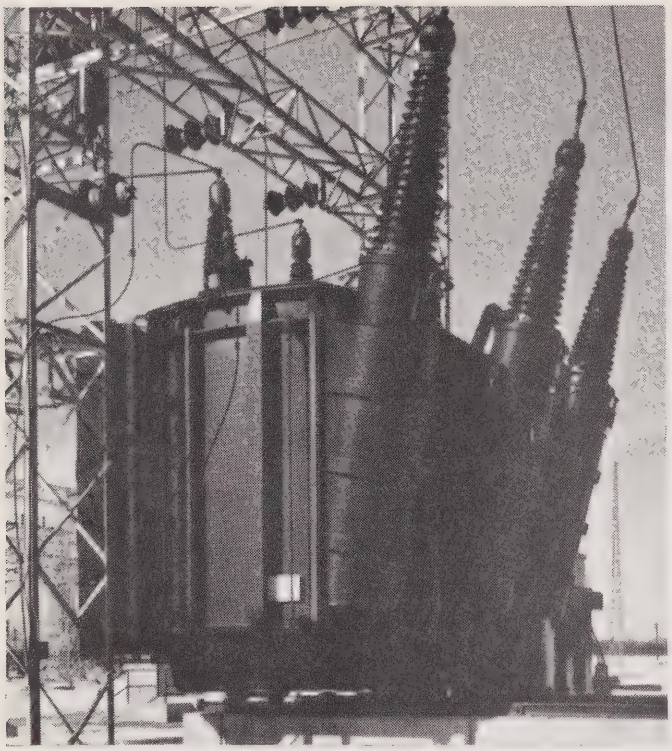
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* *(Mr. Mitchell is the Commission's Project Engineer — Transformer Stations.)*

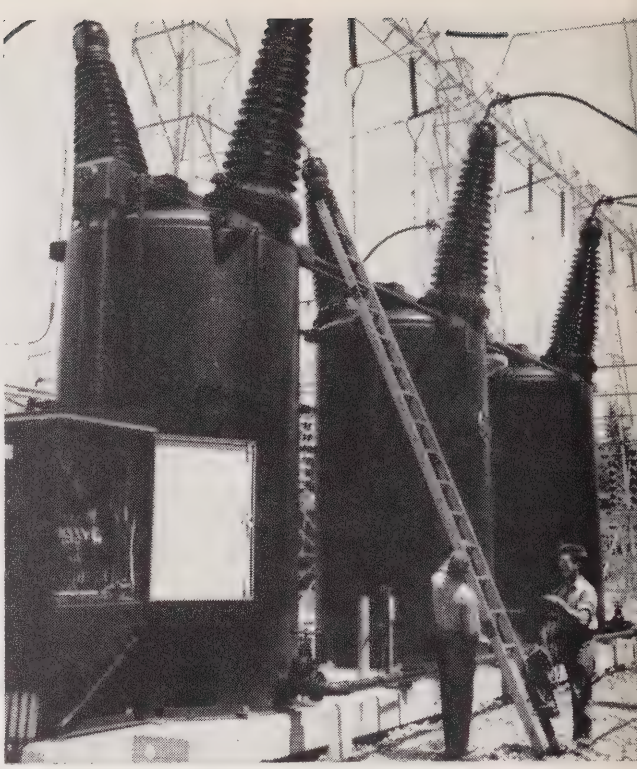
AERIAL view of Hydro's 455,000-kva Burlington Transformer Station near Hamilton, a major station in the Southern Ontario System. Burlington also serves as a main switching station connecting generating stations on the Niagara and Ottawa Rivers.



MARKHAM D.S., situated northeast of Toronto, is a typical outdoor distributing station. These stations, which are unattended, range in capacity between 600 and 6,000 kva.



THIS type of 115,000-kva auto transformer, with voltage levels of 230 kv., 115 kv. and 13.2 kv. is in common use at several main stations. Hydro is also using 215,000-kva transformers with similar voltage ratings.



OIL circuit breakers now in use at 230 kv. are built as three separate tanks and have interrupting capacities up to 15 million kva. They protect systems against power overloads.

over transmission lines from generation sources is stepped down to safer and more economical distribution levels for delivery to the ultimate customer or for local re-transmission. Transformers are now being built with a capacity of 215,000 kva. These transformers weigh approximately 246 tons with oil. The upper limit is, at present, set by the maximum shipping weights and railroad clearance dimensions.

Circuit breakers are an integral part of the power circuits, and are used for opening the circuits, either as an operational procedure, to automatically control the power flow or to protect electrical equipment. Oil circuit breakers now in use at 230 kv. are built as three separate tanks, one per phase. They are approximately 23 feet high and 41 feet wide overall, and weigh about 26 tons with oil. Air blast circuit breakers operating at 300 to 600 lbs. per sq. in. pressure are also built as three separate elements, the interrupters being supported on and enclosed in porcelain pillars.

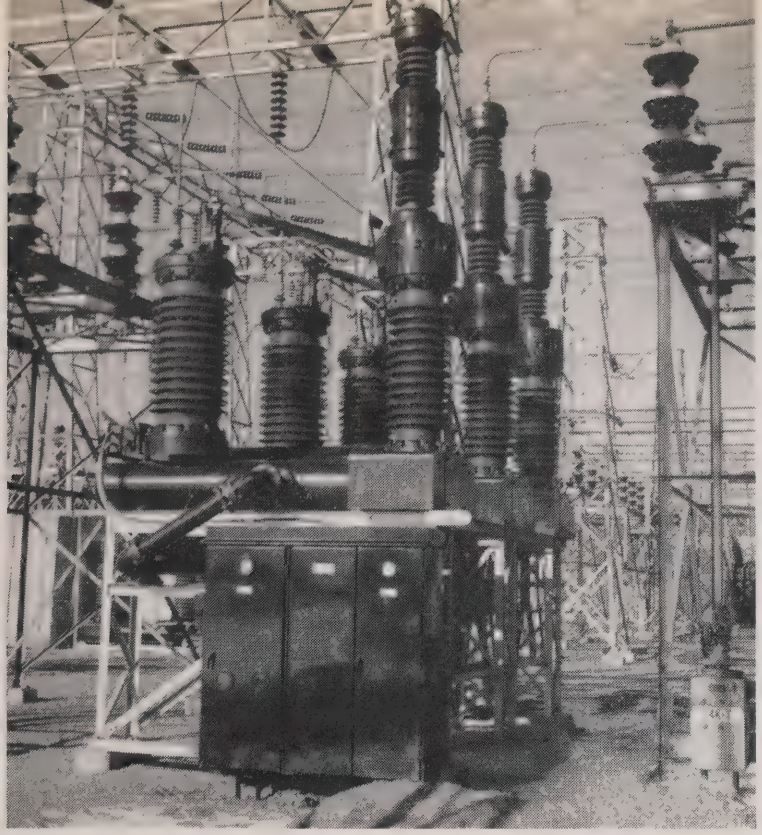
Relays are delicate precision instruments, which automatically operate the circuit breakers when required to protect the station equipment and ensure continuity of service under electrical fault and overload conditions. They are generally mounted on panel boards in special relay buildings adjacent to the apparatus they protect.

Synchronous Condensers – large, rotating electrical machines, which are installed at the transformer stations to provide control of the station voltage level. There are two types in general use – air-cooled and hydrogen-cooled. They weigh approximately 200 tons installed, and have their own control and relay protections.

Switchboards – located in the main control room, on which are assembled the various electrical indicating instruments, relays and other control devices required for the operation of the station. The metering and control equipment is usually mounted on one group of switchboards, while the relays and protective equipment are arranged on other groups of panels.

Annunciators are associated with the control and protection of the station. Whenever an electrical fault occurs in any part of the station, its exact location is indicated by a system of lights and audible signals.

Control and power cables for the station include the power cables used when the main electrical connections are underground and the multitude of control cables, which are required to interconnect the relays and control equipment used for the operation and protection of the station.



AIR BLAST circuit breakers are being used extensively at switching and transformer stations. They are built as three separate elements with the interrupters supported on and enclosed in porcelain pillars. Control equipment is in the foreground.

Station service equipment consisting essentially of a source of alternating current power, an alternating current distribution network, a station battery, a direct current distribution network and an air compressor installation with air lines. Together with the control facilities, the station service layout can be likened to the nervous system of the human body. If it fails, the station cannot be controlled. It is customary, therefore, to provide a duplicate station service supply to important equipment.

Mechanical equipment includes the heavy duty cranes, which are required for the handling of the heavy parts of the transformers and condensers during assembly or maintenance, water and oil pumps, oil conditioning equipment, oil storage tanks, oil treating systems, air compressors, ventilating fans and air conditioning equipment.

Station Planning

A typical transformer station layout consists of 230/115 kv. voltage transformers, 115/46 kv. or lower voltage transformers, switchyards, condensers, control building, relay buildings, oil buildings and railway sidings.

Before proceeding with the design of a transformer station, a suitable site must be chosen. For a major station, the location must be reasonably close to the area to be served, near the transmission line right-of-way and, if possible, adjacent to a railway line. A flat, dry site, with suitable bearing soil, is desirable as it reduces the grading and drainage problems and, therefore, the ultimate cost of the station.



The main switching areas should be located where they can most conveniently serve their transmission circuits. This indirectly defines the transformer areas. At the same time, the positions of the railway sidings and the condensers are also settled, for these sidings must serve both the transformers and the condensers.

The control building is usually built in the approximate centre of the station. This location permits the shortest, most economical control cable runs, and gives the station operating staff the benefits of a central location. Relay buildings, air compressor and oil buildings are located in or near the areas they serve.

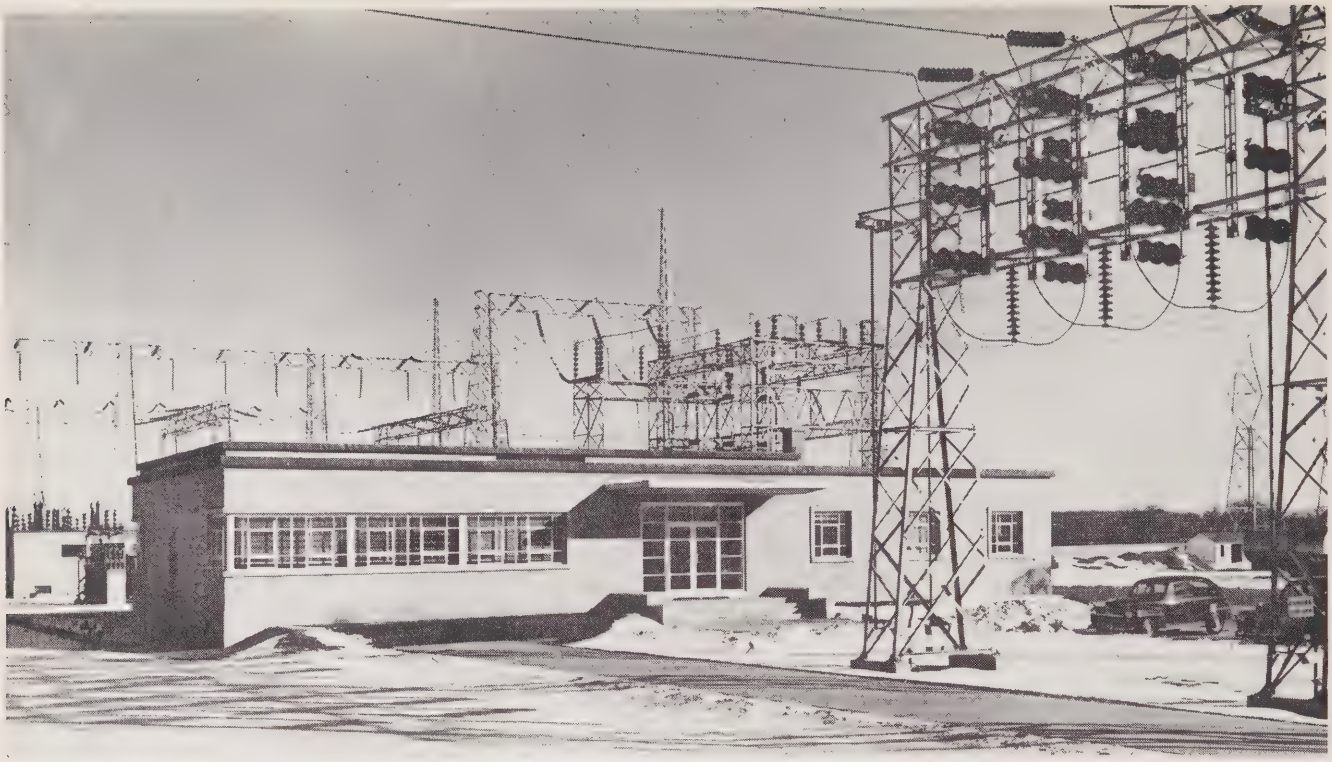
The scheme of connections to be used requires extensive study. It is necessary that a means be provided to facilitate the installation or repair of any of the major equipment without taking the station out of service. It is also necessary that a plan of relay protection be provided for equipment, buses and lines to allow automatic isolation of elements in the event of trouble. In some cases, it may be necessary to limit short circuit currents by the use of reactors.

Steel towers, girders, switch stands and their associated concrete footings provide the structural support for the buses, line entrances, circuit breakers and disconnecting switches, which make up the electrical equipment for switching areas.

Stepping down the voltage between these switchyards are the transformers, which have their own steel structures and concrete foundations. These are connected electrically, either by overhead buses or underground cables, to the switching areas they join.

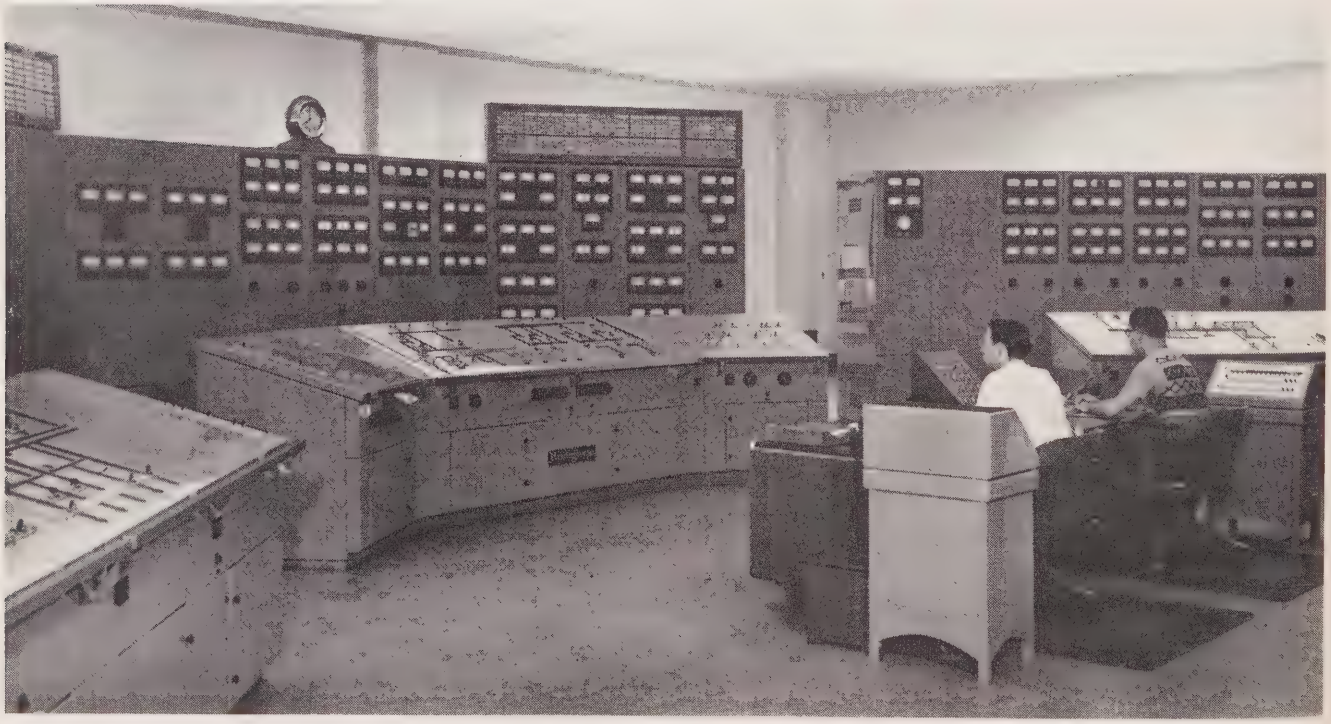
All of these switching yards, transformer areas, and services are

(Continued on page 19)



CONTROL buildings at recently-constructed Hydro transformer stations are low, one-storey structures. Large windows provide ample natural light.

INSTRUMENTS and control devices in the control room are grouped to give station operators convenient access when necessary.



electrically connected to the control room in the control building by cables running in the underground duct system, which serves the various areas. In the larger stations, some of these duct lines contain over 300 runs of two-inch fibre ducts.

Control Buildings

All buildings constructed within the last two or three years, are of a modern functional design. For example, the control buildings at the A. W. Manby Transformer Station, and Richview Switching Station, adjacent to Toronto, or the E. V. Buchanan T.S., on the outskirts of London, are of a low, one-storey design with large expanses of glass for good visibility. The lighting in the control room is carefully designed to avoid glare and shadows. The instruments and control devices are grouped to allow the station operator to take instant and convenient action when necessary.

In addition to the main control room, the control building contains offices, telephone rooms and cable rooms where control cables enter the building and are re-arranged to go to their respective sources. Space is also provided in the control building for relay rooms, which house the protective equipment. This important building also includes oil rooms and air compressor rooms where filtering equipment and air compressors are installed. Minor maintenance jobs are handled in the maintenance rooms also located in the control building. At certain major stations, a service building, complete with cranes and railroad sidings for taking care of major maintenance work in the area, is erected.

Damage to electrical equipment from excessively high voltages, caused by system faults, switching surges or lightning is of considerable concern to the engineer. He is faced with the problem of designing the station so that these voltage surges will be conducted to ground either by gaps or lightning arresters. For protection against direct lightning strokes, overhead wires located above the power conductors and solidly connected to ground are provided.

Modern Trends

The largest transformer stations now in use have a capacity of approximately a half-million kva, and incorporate transformers with a capacity of 215,000 kva. Plans are now under way for the construction of even larger stations.

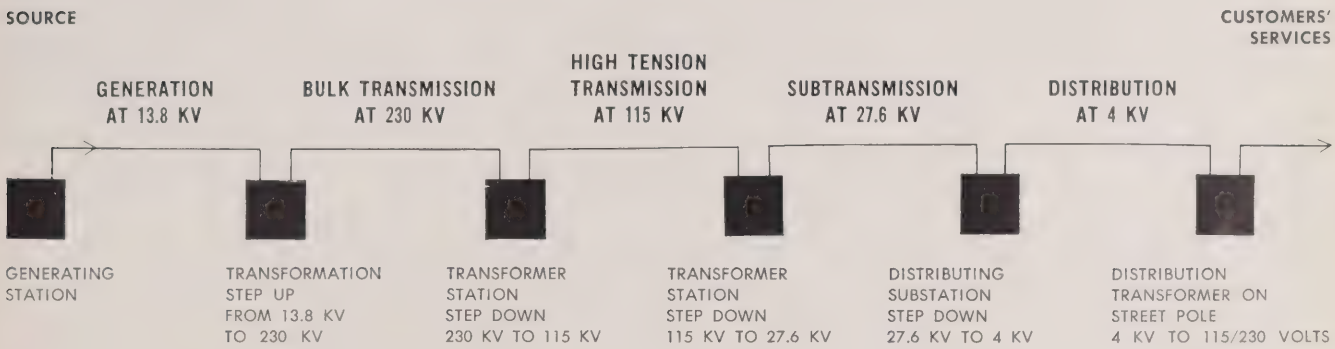
Modern high voltage circuit breakers are capable of interrupting up to 25 million kva at 330 kv. in 1 20th of a second. To date, the Commission has not found it necessary to provide for more than 15 million kva interruption in these devices; however, new projects may demand the higher rating. Manufacturers have developed breakers of the air blast and minimum oil types. These are presently being given greater use on the Commission's systems. These breakers require little or no oil, and the fire hazard associated with oil has been virtually eliminated.

Switched capacitors are now frequently used in place of synchronous condensers, in which case facilities are not required to transport the heavy condenser parts. Thus it is possible to obtain improved voltage conditions at individual locations, and, at the same time, avoid the high cost of installing synchronous condensers.

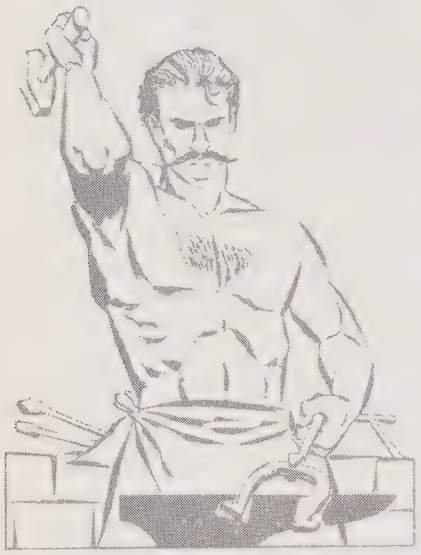
Prefabricated buildings have been used in small stations as an economy measure. To retard the rising costs of operation, supervisory control (which is akin to automation) has been used extensively. By this means, a group of stations is controlled from one location rather than having a complete operating staff at each station. The interconnecting link may be a telephone circuit or a short-wave radio channel. ■

ELECTRIC POWER TRANSMISSION AND DISTRIBUTION

GENERATING STATION TO HOME



MUSCLES FOR METALS



In giant electric furnaces, Electromet's Welland plant produces carbons and alloys for many Canadian industries

ABUNDANT electric power at a convenient transportation crossroads brought Canada's first large-scale ferro-alloy plant to Welland 50 years ago.

Electro Metallurgical Company, Division of Union Carbide Canada Limited, celebrated its 50th birthday last year. Among the noteworthy achievements of the past half-century is the fact that the plant's output has multiplied into a variety of ferro-alloys, carbon and graphite products. And the entire Electromet organization has expanded to include another ferro-alloy plant at Beauharnois, Quebec, and two quartzite quarries. The company's products are sold all across Canada and in the export markets, being used by other industries to make a wide variety of materials ranging from steel to parts for atomic reactors.

Today, the plant sprawls about one mile along the Welland Canal. A major contributor to the economic well-being of the area, the plant employs more than 1400 men and women. Some five per cent of these employees have been with the company for 25 years or more, and 50 per cent have at least 10 years' service.

Since its modest beginning, the Welland plant's consumption of raw materials has grown greatly to meet the expanding demand for the company's products. Raw materials pour in from all over the world. Chromium ores and manganese ores arrive from Africa, Cuba, India, Pakistan, the Philippines, and Turkey. Silica ores, called quartzite, come from Electromet's own quarry near Killarney in the Georgian Bay area of Ontario. Anthracite comes from the United States; petroleum coke from Canada's oil refineries, and pitch from the country's steel industry.

The plant now uses about five times as much electric power as the City of Welland, and consumes each month enough water to service 50,000 homes. Most of the power is used to generate heat in the huge electric smelting furnaces, and in electric graphitizing and calcining furnaces.

(Continued on page 22)





NOW MORE THAN 50 years old, the Electromet plant parallels the Welland Canal for approximately one mile, while its staff includes some 1,400 men and women.



THIS 40-TON locomotive crane is moving petroleum coke from one of the material piles. Coke is one of the basic raw materials in the manufacture of graphite products.



STOKING A FERRO-ALLOY FURNACE IN THE LARGE WELLAND PLANT

However, it also operates the 1700 electric motors, large and small, distributed through the plant. These motors range from fractional to the 150 and 175-horsepower units driving compressors, pumps, crushers, ball mills, etc.

Helps Make Alloys

Considering all the things that are made of steel, it is easy to comprehend the nation's dependence on this metal. Even in the average home, there is said to be more than two tons of it!

Yet, not a single ton of steel is made without alloys – such as are produced in Electromet's Welland plant. It takes alloys to cleanse steel of impurities during its manufacture, and also to give steel special properties – like strength and hardness – that make it superior to other materials for a variety of purposes.

Very few alloying metals are found pure in nature. They are usually found in the ground as ores, which are chemical mixtures of several forms of metals and impurities. So the men of Electromet use the plant's giant electric furnaces to wrest the alloying metals from the ore.

Most of the alloys produced here are a combination of iron and one or more other metals, such as manganese, silicon, and chromium. At the alloy plant, these experts carefully weigh out each ingredient of the formula required to make up the mix for the electric furnaces. To the ores they add reducing agents such as petroleum coke to convert the metal oxide of the ore into the desired pure metal form. They they introduce a special kind of limestone, called dolomite, needed to form a liquid slag or flux to flush away the impurities formed during the process.

When these ingredients are blended thoroughly, they are dumped into bins above the furnace for which they have been prepared. By automatic controls, the mix flows from the bins into the top of the electric furnace, from which point it gradually descends to the smelting zone.

Heat From Electricity

The electric furnace is the very heart of the Welland plant's alloy operations. These furnaces are steel shells lined with thick layers of fire brick and carbon blocks. The hearths are several feet thick, and are also made of carbon blocks.

Each furnace has three carbon electrodes – up to 3 feet in diameter – connected to a source of low voltage electric power. These electrodes are inserted or withdrawn from the top of the furnace.

The heat in the furnace is created by passing electric current from one

to another of the electrodes through the furnace mix. The temperature of the arc that passes between the electrodes may reach as high as 6000 degrees Fahrenheit! Such an intense heat is needed to smelt the ores, and the electric arc furnace is the only way to reach this high temperature commercially.

Watching from the charging floor, the spectator sees a mass of flames bursting from the top of the furnace. One hears the snap and crackle as crushed ores, coke and fluxing materials are continuously banked around the three giant electrodes. Suspended above the furnace, these electrodes have their tips buried in the blazing charge.

The molten alloy and the slag flow to the bottom or hearth of the furnace. Here they form two separate layers – the lighter slag remaining on top.

Now comes the most picturesque scene of all – the tapping operations. The furnace tappers use an electric arc and steel rod to open the tap hole in the front of the furnace. Soon a trickle of molten metal emerges. After a little prodding, a rushing stream falls into the ladle. From the ladle, the metal stream pours into long narrow troughs for cooling. Spectators stand fascinated as the alloy metal changes in color from white to yellow and then to orange, red and finally to dark grey as it solidifies.

Where Alloys Are Used

The alloy business is broad in nature – alloys are used in both the ferrous and non-ferrous industries. By far the biggest user of the Welland plant's ferro-alloys are Canada's iron and steel industries.

However, the non-ferrous industries consume substantial quantities of Electromet's ferro-alloys. For instance, most of the aluminum used today is in alloy form, because alloys improve its "castability" and mechanical properties. Pure copper is extremely useful, but this valuable metal would have fewer applications if it weren't for alloys. And other non-ferrous metals such as brass and bronze rely just as heavily on alloying ingredients.

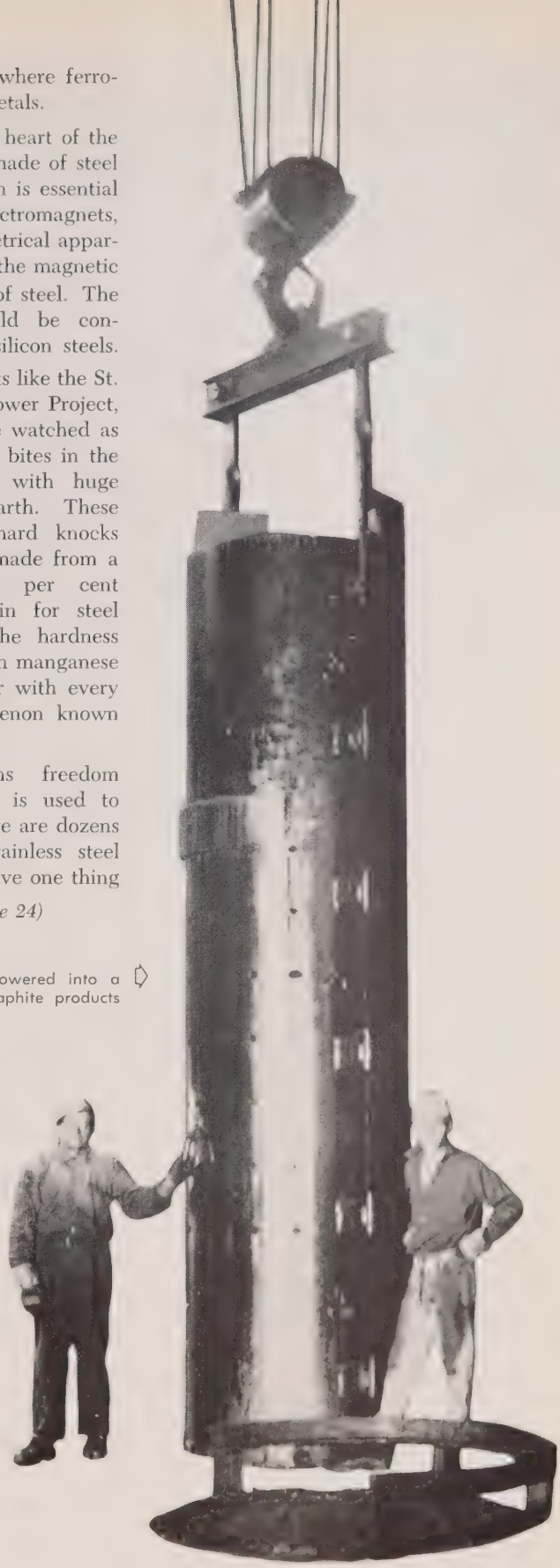
Consider a few cases where ferro-alloys put muscles into metals.

Take ferrosilicon. The heart of the electrical transformer is made of steel containing silicon. Silicon is essential in sheet steel for electromagnets, generators, and other electrical apparatus because it improves the magnetic and electrical properties of steel. The cost of electricity would be considerably more without silicon steels.

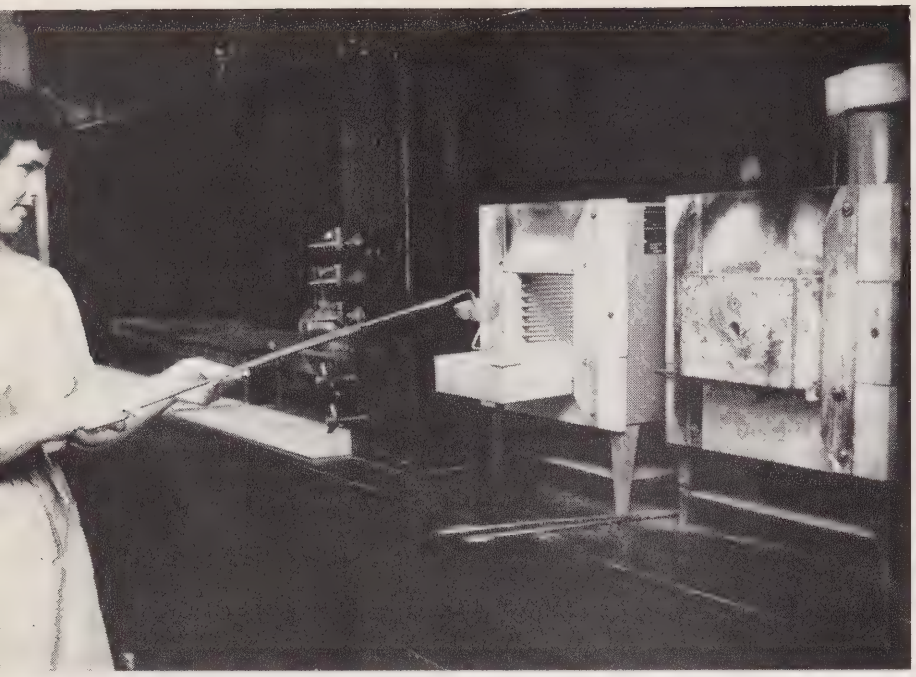
On construction projects like the St. Lawrence Seaway and Power Project, hundreds of visitors have watched as power shovels took deep bites in the ground, and came up with huge chunks of rock and earth. These shovels can take the hard knocks because their teeth are made from a steel containing 12-14 per cent manganese. This vitamin for steel considerably improves the hardness and strength—in fact, high manganese steel actually gets harder with every knock due to a phenomenon known as work hardening!

Ferrochromium means freedom from corrosion when it is used to make stainless steel. There are dozens of different kinds of stainless steel produced, but they all have one thing

(Continued on page 24)



THIS HUGE CONTAINER is lowered into a retort while impregnating graphite products with pitch.



TECHNICIAN is removing two platinum dishes from an electric muffle furnace. The dishes are used for silicon determination.

in common — they contain at least 12 per cent chromium.

Another important phase of the Welland plant's output is the production of carbon and graphite products.

To most people, coal and coke are fuels to burn in furnaces, and pitch is something to make roofs watertight. To Electromet's people, however, these are the basic raw materials they use in the carbon and graphite process.

First, the volatile material in the coal and coke must be removed. The Welland plant does it in two ways — by heating in rotary kilns or by heating in electric calcining furnaces.

To be useful, these products must be baked in kilns for a period of from three to seven weeks depending on the kind of material desired. After baking, the material is known as a carbon product, and may be shipped to the customer after cleaning and inspecting, or it may be machined into special shapes before shipment is made.

To produce graphite, a further step is needed. This is done inside electric furnaces that reach temperatures of 6000 degrees Fahrenheit, and transform carbon into graphite. Carbon is a hard abrasive material difficult to machine; graphite is a "purer" form of carbon. It is a relatively soft, lubricating material, and can be easily machined. To complete the entire process requires 12-14 weeks for a carbon product, and 16-20 weeks for graphite.

Carbon Proves its Worth

Among the elements of nature, carbon is like the unappreciated ugly duckling, although it does appear in one glamorous form — the diamond. Few realize that carbon is one of the most universally used elements in the world today.

Pure drinking water, food, clothing, recreation, medicine, transportation, personal comfort and welfare are directly dependent upon carbon in some form. And graphite — the crystalline form of carbon — is an important component in the atomic energy program.

In Welland the men of Electromet produce carbon and graphite, and shape it into electrodes weighing as much as two tons; anodes, furnace linings and in many other shapes. These products are sold to the metals, chemical and metallurgical industries, which use these products to make steels, calcium carbide, ferro alloys, abrasives, phosphorus, titanium dioxide slag, cobalt, caustic soda, and chlorine.

Inert to most chemicals, carbon is fabricated into pumps, pipes, heat exchangers and other types of chemical processing equipment.

Still another use for Electromet's carbon and graphite is to make sliding contacts — known as "brushes" — that serve as the electrical conductor between the rotating and stationary parts of electric motors and generators. As many as 125 of these brushes are used in a single diesel-electric locomotive.

Graphite is used as a moderator in many atomic reactors, as reflector material and for thermal columns. A 58-ton reflector of graphite is used in the Canadian NRX reactor. And the new NRU reactor at Chalk River contains a graphite thermal column of truly massive proportions.

Retrospect and Prospect

One of the economic marvels of this century has been Canada's industrial growth within the last few decades. It is safe to say that those industries based on electric furnace operations have contributed in a major measure to this country's extraordinary growth.

The Welland area, close to the "powerful" Niagara Falls district, has been able to contribute greatly to the country's phenomenal industrial expansion. Electromet's efforts too have played a part in this development.

This year, this Welland plant starts on its second half-century of growth and production of many of the things that aid the material progress of Canada. ■



GENERAL VIEW OF THE MARIAN ISLAND ROSARY SHRINE IN THE GROUNDS OF NAZARETH HOUSE NEAR ST. MARYS, ONT.

LIGHT ON A SHRINE

by Don Wright

TUCKED away in a wooded glen near the Town of St. Marys, Ontario, the Marian Island Rosary Shrine has become a favored haven for devout and interested visitors of many faiths.

Many call at this outdoor sanctuary – a dominant feature of the grounds of Nazareth House – after darkness has fallen. And they find it just as beautiful, and perhaps even more interesting than it is in the brilliant sunshine of a summer afternoon. For the shrine is now fully illuminated by a new lighting system devised by the Lighting Section of Ontario Hydro's Consumer Service Division.

While the lighting problem was a challenging one, the shrine itself is unique, and the story behind its setting has long intrigued local residents. It was built as a manual labor project by the young novitiates of the Scarborough Foreign Mission Society, on top of a circular "island" of earth on the grounds of Nazareth House, outside St. Marys. The classical-style mound measures 260 yards in circumference and 15 feet in height, but the reason for its existence is the subject of considerable controversy.

The mound is known to have been built by a gardener employed by the original owners of the property about the turn of the century. Conjecture has it that he performed this prodi-



FATHER E. C. MacDONALD, spiritual Director of Nazareth House and designer of the shrine is changing a bulb in a unique lighting fixture. The standard is actually a tree trunk, with roots intact, and grooved to conceal the wiring.



THIS nocturnal view of the shrine's Crucifixion tableau emphasizes the effective lighting plan devised by Ontario Hydro's Lighting Section. Two clusters of two, ground-mounted 150-watt flood lamps, with weatherproof adjustable housings, supply the illumination.



SUBTLETY of the shrine's lighting system is evident in this view of the chapel (left) which is effectively highlighted by two clusters of three, 150-watt floodlights.

gious feat, over the course of a score of years, with the sole use of spade and wheelbarrow. Whatever his purpose, the efforts of this persevering individual have been effectively perpetuated, as this insular mound now provides a commanding site for the remarkable sanctuary.

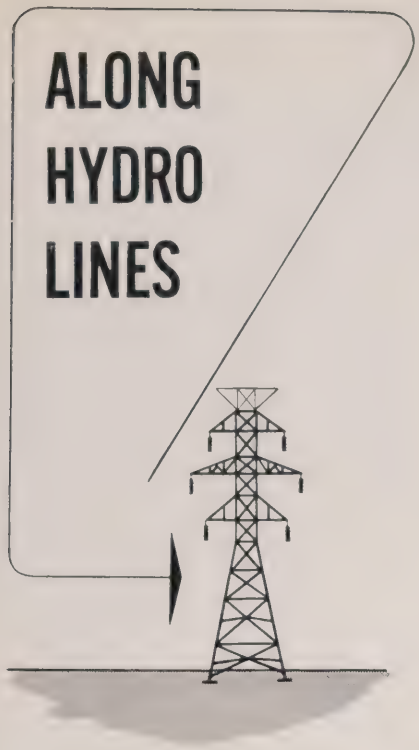
Representing the various components of the Rosary, beginning with the Sign of the Cross at the foot of a life-size Crucifixion tableau, the ingenious shrine has the beads symbolized by different varieties of evergreens, while the medallion is represented by a handsome chapel of solid field stone. Other features include Our Lady of Fatima group, a circular stone fountain, an extensive patio and an old-fashioned well. The field stone, used extensively in the construction of the shrine, was recovered from the crumbling foundations of old buildings in the area.

Because of the location of the shrine, well outside the town in a glen-like setting accessible only from a sideroad, competitive light sources were not a problem. The goal of Hydro's lighting staff was to provide just enough glare-free, general illumination to reveal all aspects of the shrine, and still permit the individual dramatization of its principal features. How well they succeeded may be judged by the accompanying photographs.

To avoid detracting from the beauty of the shrine, underground wiring was used exclusively in the vicinity. BXL cable was run to an inconspicuous junction box mounted at ground level to supply both lighting and hi-fidelity sound equipment. Controls are located in the novitiate, some 400 yards away.

General, indirect illumination was achieved with the use of 200 and 300-watt bulbs, fitted in porcelain reflectors on steel standards, strategically located throughout the grounds. Clusters of two and three floodlamps, mounted at ground level in weatherproof, adjustable housings, were used to highlight the major features. Appropriate music is carried to all corners of the grounds by a network of eight loudspeakers associated with the hi-fidelity system.

The lighting of the Marian Island Shrine is indicative of the variety and scope of the tasks undertaken by Hydro's Lighting Section. Jack Thompson of this section designed the lighting project described in this article. ■



Exeter to Operate Hydro Services

Hugh Davis, an Ontario Hydro lineman, who has been on loan for several years to Exeter P.U.C., has been appointed Superintendent of the utility. In announcing appointment of Mr. Davis recently, Chairman L. J. Penhale said the Exeter P.U.C. was planning to take over operation of electrical services in the community from Ontario Hydro on January 1, 1958. He said the local utility, which would operate from its present offices, planned to hire a working foreman and possibly another lineman before the changeover.

Hanover P.U.C. Constructs New 1,500-kva Substation

Hanover P.U.C. recently awarded a $16,390 contract to local contractors for construction of a new substation. Total estimated cost of the project, including a 1,500-kva transformer to be installed by the utility staff, is $30,000.

THOMAS DICKSON

Well-known among representatives of the associated municipal electrical utilities, Thomas Dickson, Supervisor of Ontario Hydro's Lighting Section, died recently in his 42nd year following a brief illness. Born in Scotland, he came to Canada when he was four years old, being educated in Toronto.

Mr. Dickson joined the Commission in 1937, being employed in various capacities until his appointment as Lighting Supervisor in 1953. He served in the R.C.A.F. for three-and-a-half years during World War II. Prominent in Boy Scout work, he also took a keen interest in church activities.

He is survived by his wife and two sons, while a sister, Mrs. Shirley B. Nicks, is a member of the staff of the Commission's Operations Division.



THOMAS DICKSON

Tweed Hydro Announces Rate Cut

A substantial reduction in rates has been announced by the Tweed Hydro-Electric Commission, and took effect in that community recently. The average overall reduction was more than 20 per cent. The revised rates will reduce revenues as follows: power, 28.4 per cent; commercial, 28.2 per cent; domestic, 19.9 per cent, and street-lighting, 5.3 per cent.

"Trees" New Theme Song For Galt P.U.C.

Effective January 1, 1958, Galt Public Utilities Commission assumed complete charge of the planting, cutting, and maintenance of trees in the City of Galt, in addition to the normal trimming and cutting necessary to obtain clearance for local distribution lines. Previously, the Galt Parks Board had been responsible for this activity, but city council has voted $2,500 annually to the utility, which will take over the work. The council also has made provision for payments relating to the planting of new trees.

Appoint Manager at Petrolia

Wilson Rose has been appointed Manager of Petrolia Public Utilities Commission, succeeding George Howlett. Mr. Rose, a native of Petrolia, has been a member of the staff since 1939, and has recently been in charge of general maintenance. He interrupted his Hydro career to join the R.C.A.F., and served in Canada, England, Ceylon, Burma and India during World War II.

Mr. Howlett, associated with the utility for 21 years and manager for the past decade, resigned his post for health reasons, and has been appointed manager of maintenance in both the Hydro and waterworks departments.

SANDWICH BRANCHES OUT

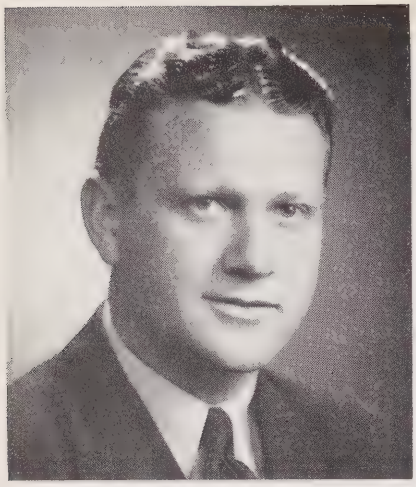
(Continued from Page 13)

largest transport can enter the garage to unload. There is ample customer parking space, and the grounds have been landscaped.

The striking entrance to the building is accented by an Italian glass mosaic panel. The public space, conference room and manager's office have luminous ceilings. Other offices have a new type acoustic ceiling with fluorescent lighting, and all exterior and interior colors, as well as the furnishings, have been carefully co-ordinated. Air-conditioning is incorporated in all main areas. Heating is a multi-zone hot water system.

- by The Editor.

APPOINTMENTS ANNOUNCED



W. H. EDWARDS



O. S. RUSSELL



F. O. PRICE

APPOINTMENT of William H. Edwards, B.Sc., P.Eng., to the position of Manager, West Central Region, effective January 1, 1958, was announced recently by J. M. Hambley, Assistant General Manager – Administration. He is replacing O. S. Russell, who has assumed the duties of Director of Organization Services.

Mr. Edwards, who succeeded Harry H. Leeming as Director of the Frequency Standardization Division in January, 1957, first became associated with the Commission in his undergraduate years at the University of Toronto. Upon graduation as an electrical engineer in 1929, he joined Hydro as a junior engineer in the Eugenia District of the Georgian Bay System, and his service has been continuous, except for a short period as a sales engineer with a private firm in 1931-1932.

His lengthy and varied service has included various supervisory positions in line maintenance and operating work at Hamilton, as well as at Toronto, Belleville and Smiths Falls. He was named F.S.D. Co-ordinating Engineer in 1949, after serving for one year as Special Assistant to the Manager of the East Central Region.

Mr. Russell, whose appointment was announced by E. H. Banks, Assistant General Manager and Comptroller, took up his duties as Director of the Organization Services Division in January, succeeding Gordon B. Tebo, who has accepted a position with the Canadian Standards Association.

Joining the Commission as an engineer in the Niagara District in 1930 shortly after graduating from Queen's University, Mr. Russell served as Line Supervisor in Niagara East and West Divisions, being promoted to Line Superintendent in 1943. In 1947 he was named Operations Engineer, Western Region, a position he held until his appointment in September, 1953 as Manager of the West Central Region.

Mr. Hambley has also announced that 32-year-old Frank O. Price, B.Sc., P.Eng., is to succeed Mr. Edwards as Director of the Frequency Standardization Division. Mr. Price is the youngest Director ever to be appointed by the Commission.

A 1947 electrical engineering graduate of the University of New Brunswick, Mr. Price was first associated with private industry before joining the Commission in November, 1948. After serving as a junior engineer until May, 1950 he became assistant to the Outside Plant Engineer, Communications, Engineering Division. He transferred to the Frequency Standardization Division as Assistant to the Co-ordinating Engineer late in 1950, and, one year later, became the Division's Methods Engineer. He served subsequently as Assistant Area Project Manager, and from September, 1953 to October, 1955 as Project Manager during frequency standardization operations at Kitchener and in the surrounding areas.

After 18 months' service as Assistant Materials Control Engineer he assumed the combined duties of Standardization and Materials Engineer, a position he held until his recent appointment as Director of the F.S. Division. Mr. Price thus brings to his new position an extensive knowledge of the frequency standardization program gained in more than seven years' varied and responsible experience. ■

TRADE TALKS

(Continued from page 6)

understood goal of aiding the United Kingdom to recover from the effects of World War II. Members of the delegation were confident, however, that the immediate objective of stimulating British interest in the rapidly-growing potentialities of the Canadian market, had the enthusiastic support of a solid phalanx of thoughtful Canadians. In a statement submitted at a joint meeting of the Canadian Trade Mission and the Dollar Exports Council in London before returning to Canada, Mr. Churchill and Mr. Duncan emphasized that 73 per cent of all Canadian imports were supplied by the United States during 1956, while only 8½ per cent came from Britain. "Obviously there is a wide field to work in without encroaching on the activities of the Canadian producer," the statement pointed out.

Reduce Trade Imbalance

Such imports would enable Britain to earn more Canadian dollars, and therefore, to purchase "more of the things, which we produce and she requires, while on our side it will enable us to reduce our growing imbalance with the United States."

As for the United States, informed opinion there recognized the soundness of the objective in terms of international economic stability.

The confidence of the members of the Mission in the feasibility of their project stemmed from the fact that British goods have two great advantages in the Canadian market; their price is competitive, and their quality is broadly recognized.

The delegation visited a great number of industries, both large and small, throughout the United Kingdom. They were greatly impressed by the efficiency of British manufacturing practices, by their progressive orientation and the alertness and diligence of the British workingman. They also noted with satisfaction the friendly relationship that exists between management and men, indicating a healthy and mature mutual understanding of national problems and economic aspirations.

The delegation received a remarkably warm and generous reception, not only from the official bodies like the Board of Trade and the Dollar Exports Council, but also from the press and the mass of the citizens.

1,400 Interviews

An indication of the interest manifested in the unique trade promotion project, and the receptivity of the British people to expanded markets in Canada, was the fact that some 1,400 applied for interviews with representatives of the group during their stay in London alone. Equally enthusiastic was the reception accorded the mission in Scotland. In Glasgow, 500 manufacturers and exporters sought further information. Responding to the request of city officials, Mr. Duncan and four other Canadians made a return visit to Glasgow.

Reporting to his colleagues in the House of Commons recently, Mr. Churchill expressed the view that the Canadian Trade Mission had achieved success beyond all expectations. ■

FOR SALE

3 Burroughs public utility billing machines; about 70,000 Style "0", double-section Loktab addressograph frames; 400 addressograph frame trays, and approximately 240 Style x B – 107 Grand & Toy 7 ring Meter Books. Please address inquiries to: *W. C. Lewis, Secretary - Treasurer, Ottawa Hydro-Electric Commission, 56 Sparks St., Ottawa.*

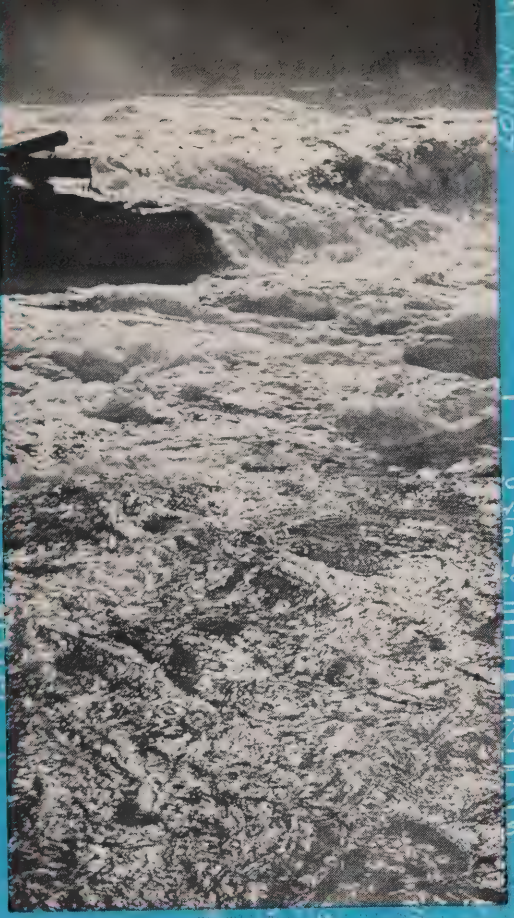


FORM TORONTO HYDRO CHOIR

Toronto Hydro employees added a new touch to the 1957 Christmas observance by singing carols before starting their daily tasks. The business office and appliance department on the street floor of the utility's Carlton St. headquarters provided an attractive setting for the singing periods. Arriving early for work each morning for a week prior to Christmas Day, staff members participated enthusiastically in the innovation. Leading the carol renditions was a 30-member staff choir under the direction of Jesse Fowler, Demand and Rates Department (extreme left in the accompanying photograph). Hastily-organized for the occasion by the Toronto Hydro-Electric Club, this new choral group was accorded hearty applause by the employees. This has given impetus to the proposal that the choir continue to operate as a permanent unit of the club, branching into other choral and dramatic activities as it enlarges its ranks.

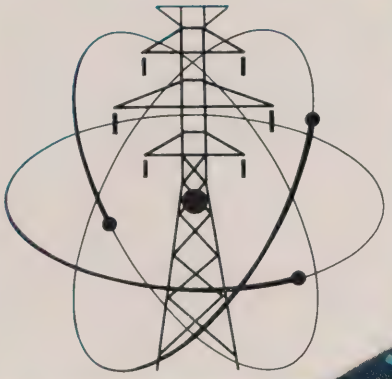


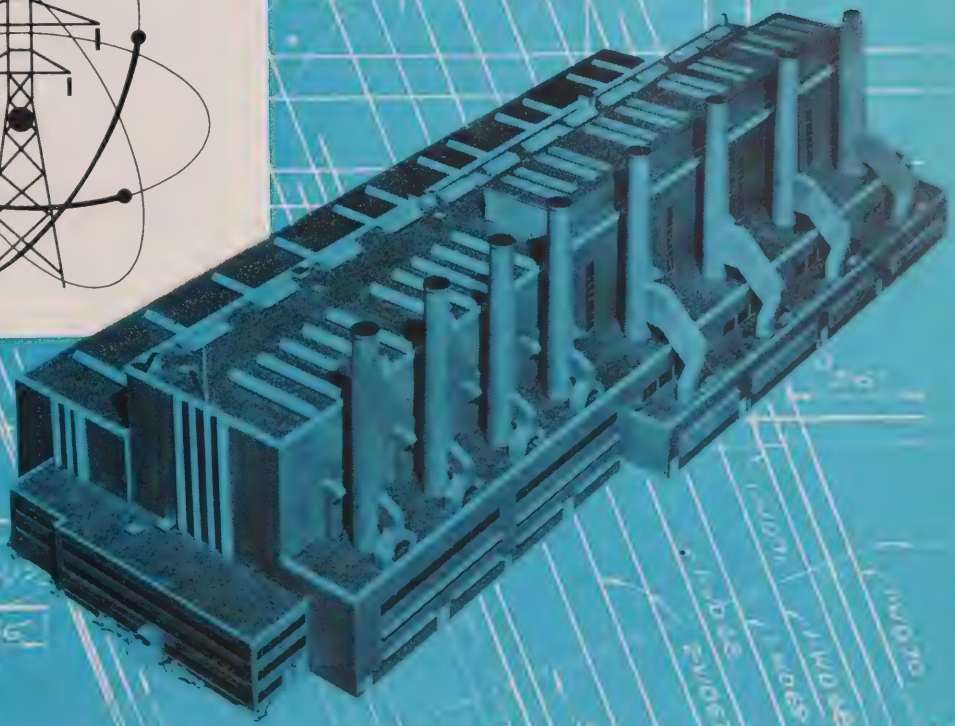
NIAGARA "POWER COMPLEX"



ONTARIO HYDRO NEWS

FEBRUARY 1958





POWER PROSPECTS
(SEE PAGE TWO)

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COVER PHOTOGRAPHS

In keeping with M. H. Ward's discussion of Ontario's power prospects on page 2 of this issue our front cover this month depicts representations of the three basic types of power generation – hydraulic, nuclear and conventional thermal. The advertisement on the back cover is one of a series appearing in Ontario daily and weekly newspapers to emphasize the theme of "Live Better Electrically."

ADVANTAGEOUS POSITION

While it was abundantly clear during 1957 that the Canadian economy was passing through a period of stabilization and consolidation, resulting in reductions in some areas of consumer spending, there were many reassuring examples of continued expansion and faith in the sustained growth of the nation.

It is, for example, particularly stimulating to examine the buoyant confidence in Canada's sound position manifested by the electrical utility industry with its intensive and vigorous development of Canada's water power resources. In an annual review of hydro-electric progress for 1957, Canada's Department of Northern Affairs and National Resources recently revealed that a total of 1,501,560 horsepower of new turbine capacity was installed last year. Representing the second highest annual increase in history, this addition brought Canada's total hydro-electric resources to 19,871,000 hp. This expansion of hydraulic generating capacity is particularly evident in Ontario. During the ensuing months of 1958, Ontario Hydro's program of development in this field will begin to pay significant "dividends." Notable, of course, will be the St. Lawrence Power Project, which is scheduled to produce its first power in July this year. Then, too, the Commission's Sir Adam Beck-Niagara Generating Station No. 2 will be brought to its full capacity of 1,370,000 kw. in the next few months. In northwestern Ontario, five separate hydro-electric projects, which have a total capacity of 163,400 kw., will "go on the line" during 1958.

Equal attention has been given to the power needs of northeastern Ontario where there has been a noticeable and reassuring quickening of the economic tempo, particularly in the world's major uranium-mining area around Blind River. Plans for augmenting resources in this prosperous sector of the province include installation of an additional 45,000-kw. unit at the Abitibi Generating Station, and construction of two new hydro-electric plants (see page 26) having an estimated combined potential of 162,000 kw.

While these hydraulic projects are of paramount importance, they are overshadowed, in some respects, by the Commission's decision to substantially increase its thermal-electric capacity. Besides plans for the installation of a fourth additional 200,000-kw. unit at its Richard L. Hearn Generating Station, Ontario Hydro has demonstrated a wholesome confidence in the province's continued development by announcing construction of two of the world's largest thermal-electric

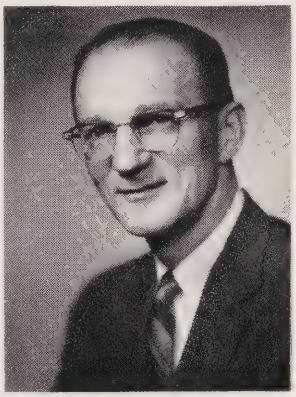
(Continued on page 27)



VIEWED FROM AN OBLIQUE ANGLE, the draft tube openings (the lower apertures) on the downstream side of the Robert H. Saunders-St. Lawrence Generating Station form a striking pattern. Each 24 feet high and 17 feet wide, the 48 openings will, under normal conditions, discharge half the flow of the river into the tailrace channel after the water passes through the turbines.

POWER PROSPE

ABOUT THE AUTHOR



Mr. Ward is the Director of Planning for the Commission. Born in England, he graduated from the University of Toronto in electrical engineering in 1931. Mr. Ward held teaching posts in science and mathematics at the University of Toronto and the Galt Collegiate and Vocational Institute prior to joining the Ontario Hydro staff in 1939. Before his recent appointment as Director of Planning, he served as System Planning Engineer in this division. This article is based on a lecture which he presented during a recent professional development course sponsored by the Sarnia Branch of the Engineering Institute of Canada.

EVER since the atom bomb fell on Hiroshima the public at large has been deluged with predictions concerning the production of cheap usable energy from the atom. Some of the less critical clairvoyants have succeeded in matching the spectacular force of the bomb with equally spectacular predictions of early achievements. However, the passage of time has brought with it a fuller appreciation of the engineering and technological problems, which must be solved before nuclear energy can be used on a large scale as a competitor to present-day conventional methods of energy production.

At present the unknowns in nuclear power are too numerous to permit anything more than a general indication of when Ontario Hydro should embark on a large-scale program of plant construction. (See page 26 for a significant announcement relating to this matter.)

A planning engineer must take several factors into account before recommending construction of a new power source, and what factors must be known before the type of resource can be specified. The basis for system planning depends on an estimate of future load demand. This is what determines the type and magnitude of the resources required, and also when they will be required.

Ontario Hydro Requirements

In 1955 a Royal Commission was appointed to inquire into and report upon the long-term prospects of the Canadian economy, and in the course of its investigations requested Ontario Hydro to indicate possible future power prospects up to 1980.

It is interesting to note that by 1960 the load could be 6,159,000 kilowatts; by 1970, 11,626,000 kw; and by 1980, 21,947,000 kw. The growth per annum ranges from 404,000 kw in 1961 to 1,351,000 in 1980.

An estimate of future peak load demand is not sufficient to permit the development of plans for adding new resources. It is also necessary to know how much energy must be provided, and how the load varies from hour to hour throughout the day. In other words, the *type* of new plant required depends upon the peak and energy capability of existing resources, and the peak and energy content of the predicted load. Thus, at some stage in the growth of a power system, the type of new resources required may be one which is required to produce full power output for only a portion of the day. This is known as a peaking plant. At another stage it may be necessary to provide a plant, which will be required to generate power on a continuous basis. This is known as a base load or high load factor plant. The reason for this is simply that the load supplied by an electrical utility is not constant throughout the day, and, therefore, some portion of the generating equipment is required to operate only on certain days and for certain hours of those days.

December Peak

To illustrate this. consider the Southern Ontario System load. The

(Continued on page 4)

LOCATED on the English River about 45 m northeast of Kenora, Maynard Falls is one the few remaining hydro-electric sites in Ont that could be economically developed. It estimated to have a potential of 39,000

S

Ontario Hydro's electrical load may well total 22 million kilowatts by 1980 . . . how will this demand be met?

by M. H. WARD

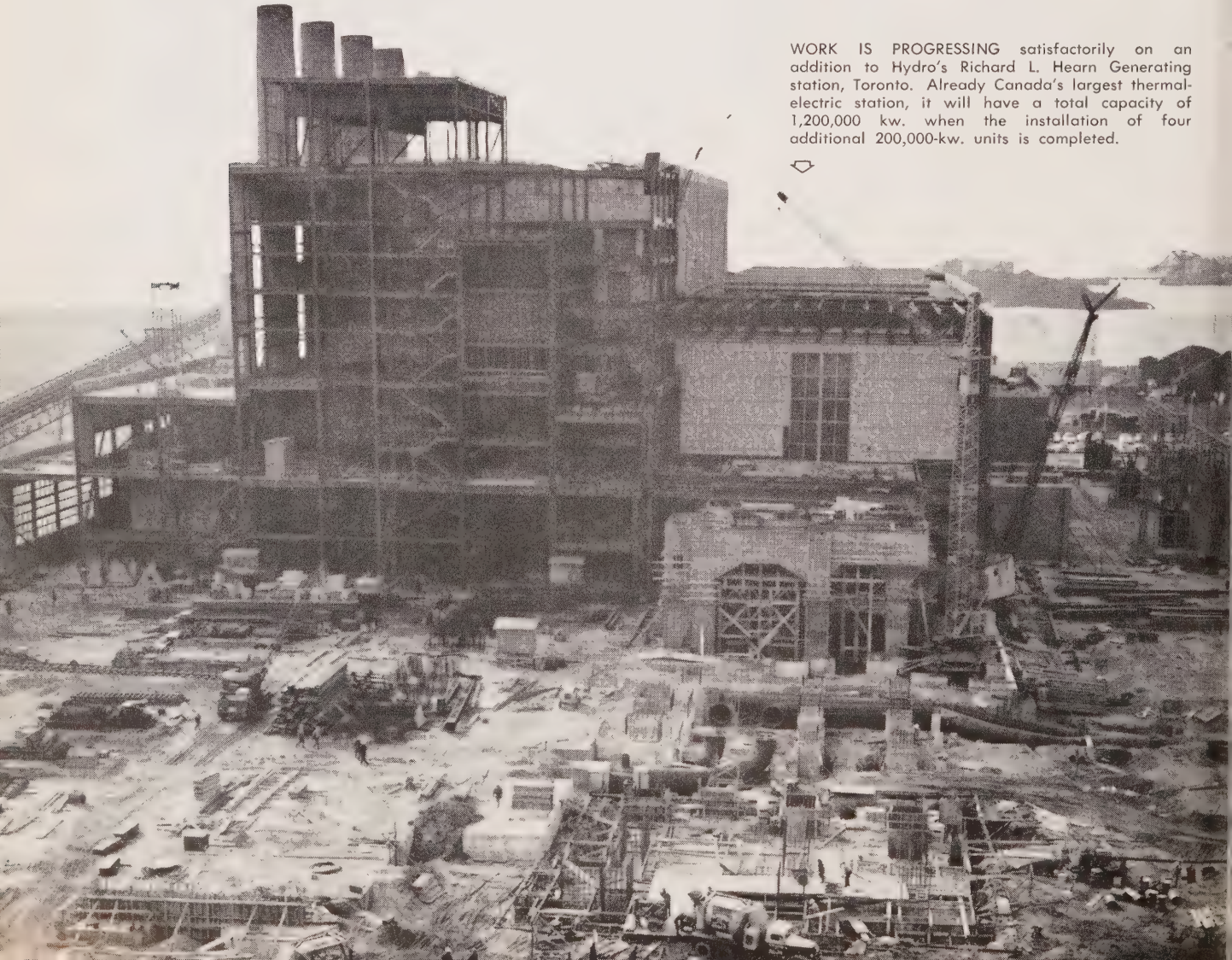


yearly peak demand usually occurs in December, and in this month the load at 4.00 a.m. is approximately 50 per cent of the peak value. The daily load factor is of the order of 77 per cent. The load varies with the seasons of the year so that the July peak load, for instance, is approximately 78 per cent of the December peak, and the July daily load factor is of the order of 79 per cent. The annual load factor is about 63 per cent. For a system having similar characteristics as southern Ontario and a December peak demand of 4,000,000 kw, this means that on the peak day, only 2,000,000 kw. of generating capacity could be operated at 100 per cent load factor, the remaining 2,000,000 kw of capacity operating at load factors varying down to almost zero. (This illustration, though not precise, illustrates the requirement of peaking plants. In practice, because of unit sizes and other considerations, it would be highly improbable to supply the base load from units which *all* operate at 100 per cent load factor. Further, it neglects the fact that certain units must operate at partial load to provide spinning reserve.)

Future Prospects

Hydraulic sites are fixed by nature, and it is axiomatic that the most economic sites are first to be developed. In general, hydro-electric plants are ideally suited for low load factor operation to provide peaking power. This is due to their relatively simple and rugged construction, with operation at low speeds and the ability to make quick starts and stops. A large portion of the cost of a hydro-electric plant is in the dam which must be built regardless of the capacity installed; therefore, additional capacity can sometimes be installed at relatively small cost. However, in determining the optimum peak capacity, consideration must be given to the transmission system required and the water storage to be provided. For peaking plants it is particularly desirable to have complete control of the storage basin. Unfortunately, in southern Ontario such is not the case, except for a few of the smaller plants. For instance, water from the Niagara River must be used on an hour-to-hour basis so that it has been found desirable to construct a pumped storage for peaking purposes. The Robert H. Saunders - St. Lawrence Generating Station, (scheduled for initial operation in July this year) will use water at a uniform rate so that peaking operation will not be possible.

The outstanding characteristics of hydro-electric development, as compared to a steam plant, are its



WORK IS PROGRESSING satisfactorily on an addition to Hydro's Richard L. Hearn Generating station, Toronto. Already Canada's largest thermal-electric station, it will have a total capacity of 1,200,000 kw. when the installation of four additional 200,000-kw. units is completed.

comparatively high capital cost and low operating cost. Thus, hydro-electric plants may cost two or more times the cost per kilowatt of installed capacity of steam plants and still be competitive. Again, as compared to steam plants, project layouts, arrangements and designs of a hydro-electric plant cannot be standardized. Sites must be taken as found in nature, and the design and layout adapted to the terrain. Thus, every Hydro site must stand on its own merit, and it is not possible to make economic studies using a fixed capital cost per kilowatt as can be done for steam plants.

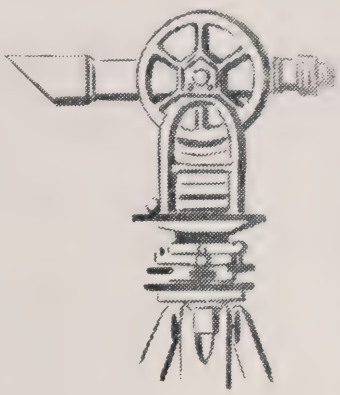
Before examining the future prospects for hydro-electric development in Ontario, it would be advisable to take a brief look at what has already been accomplished and what is in hand.

Power Program

In December, 1945, the total capacity of Ontario Hydro's hydraulic resources was 1,230,000 kw. By 1956 they had been increased to 3,291,000 kw by constructing nine new plants and increasing the capacity of two existing plants. The Commission has under construction five new plants and extensions to five existing plants, which will increase the dependable capacity of the systems by 1,254,000 kw to make a total dependable hydraulic capacity of 4,545,000 kw. Completion of the Robert H. Saunders – St. Lawrence Generating Station in 1960 will mark the end of an era, for it is the last remaining hydraulic site of large capacity in Ontario.

In southern Ontario there is about 160,000 kw of economic undeveloped hydro-electric power, largely on the Madawaska River. In northeastern Ontario there is about 550,000 kw, which can probably be developed economically, but most of it lies in the far north and considerable field investigation is still required to confirm feasibility of development of some of the sites. In the northwestern section of the province there is about 200,000 kw still to be developed. In total this amounts to 910,000 kw in 32 sites ranging in capacity from 5,000 kw to 80,000 kw, but mostly less than 30,000 kw.

Since load growth of the combined systems averaged 281,000 kw per year for the past five years, it was and will continue to be impractical to develop simultaneously sufficient hydraulic sites to meet an increasing demand of this magnitude. Because of this it was necessary to construct steam plants in Windsor and Toronto to provide generation in the amounts required in the time available for plant construction.



It is clear that Ontario Hydro must look more and more in the future to thermal generation, and the Commission is particularly interested in the possibility of nuclear power as a competitor to conventional thermal plants. However, the future course of action concerning power generation is to develop the remaining sites at a rate commensurate with Hydro's ability to construct them, and, at the same time, coordinate their development with the installation of either thermal or nuclear generation, so that, at all times, sufficient installed capacity is available to meet the load demand with adequate reserve for contingencies.

Conventional Steam Plants

Since the extent to which nuclear power will be used depends largely upon advances in technology, it would not be fair to predict that such advances will surely take place with resultant decrease in cost, while similar advances in the conventional field will remain static. Therefore, at the same time that future cost of power from nuclear plants is estimated, we must also predict what advances will take place in fossil-fuelled plants.

Very significant advances in steam plant development have been made over the past three decades and are, in fact, still being made. The items which have an important effect on the cost and performance are as follows: Size of the boiler-turbine-generator set; steam conditions such as temperature, pressure and number of reheats; selection of plant cycle; efficiency of the combustion process, and advances in technology.

Let us first consider the trend in unit size. In the early part of the century the more or less standard size was 5,000 kw. As the years passed, unit size increased until by 1930 it had reached 100,000 kw. Today, there are units up to 450,000 kw being built. If the past trend is continued into the future, it is quite reasonable to consider single sets of 750,000 kw as practical by 1980. In fact, this is a slowing down of the present rapid increase in size. It might be noted that the acceptable size of unit is as much a function of the size of the system in which it is installed as it is of the ability of the manufacturers to build. It would be impractical to install a 300,000 kw unit in a system having a load demand of 1,000,000 kw, but quite practical in a system of 4,000,000 kw.

Future Values

Turning now to steam conditions, it is again necessary to take a look at the past in order to speculate on future values. Steam temperatures, plotted on a time base, show the typical step type of curve. The trend is quite definite and shows an average rate of increase of 12° F per year, resulting in present steam temperatures as high as 1150° F. This increasing temperature cannot go on indefinitely, but metallurgical and other developments seem to promise a continuation of this advance for a while longer so that steam temperatures of 1400° F may be possible. The main problems, which oppose increasing temperatures, are corrosion and erosion of the boiler due to the ash present in all solid and liquid fuels

(Continued on page 6)

and thermal stresses in the turbine components. It is possible that such fuels may be conditioned by converting them to gas with removal of the ash, sulphur and corrosive salts prior to burning in the steam generator.

Advances in steam pressure have gone hand in hand with steam temperature, and the trend shows an increase of 5 per cent per year. A pressure of 7,000 lb. per square inch is compatible with a temperature of 1400° F and is a reasonable prediction for 1980.

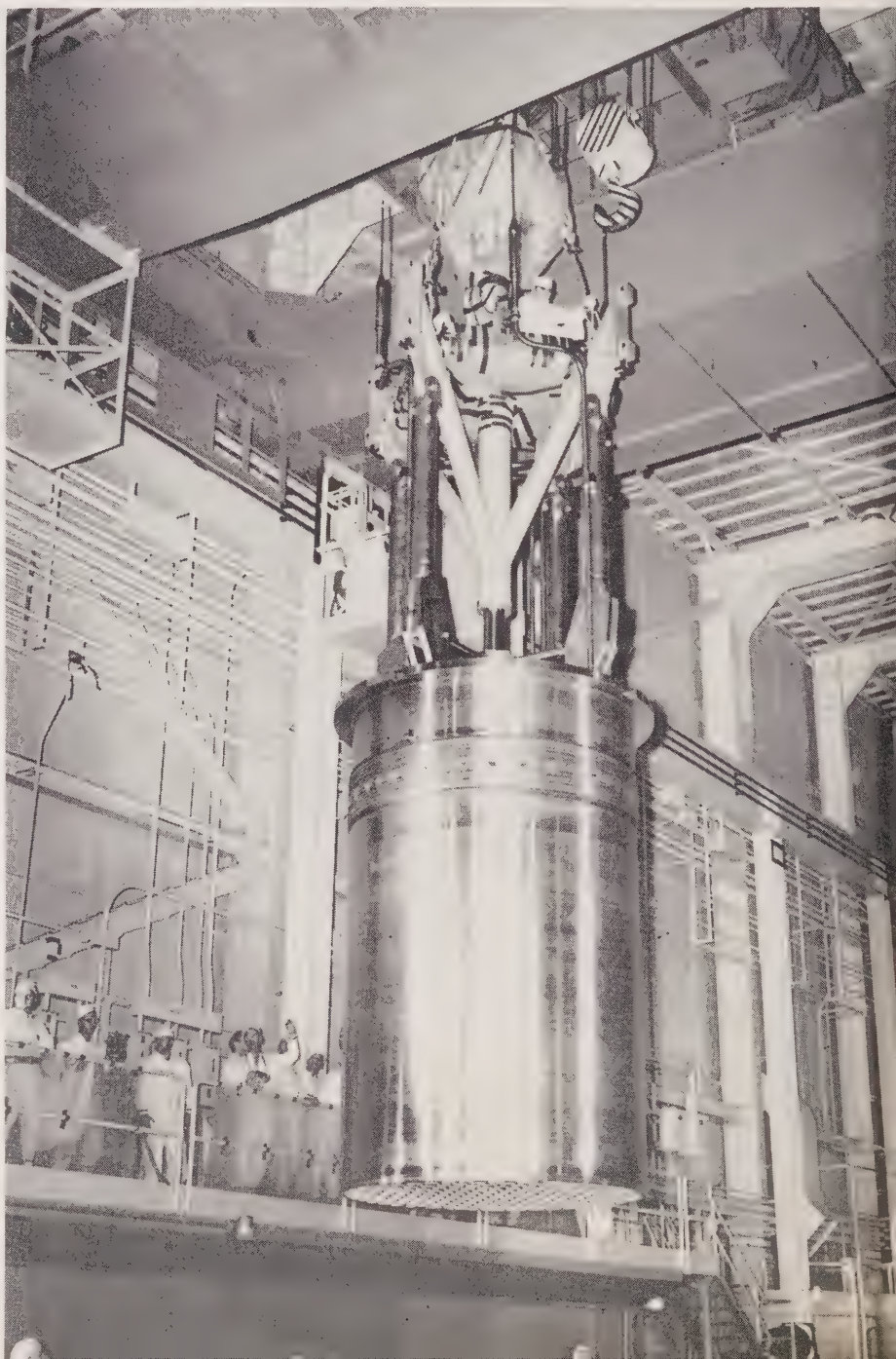
Concerning plant cycle, there are now under study and development several improvements which could have a marked effect on performance. One of these utilizes a gas turbine. The gas turbine blower supplies air to the furnace of a pressurized boiler in which fuel is burned with an efficient amount of air. The boiler absorbs a portion of the heat and cools the gases to a temperature suitable for use in the gas turbine. The gas expands through the turbine and is exhausted by way of an additional boiler to the stack. In this way the size of the furnace will be substantially reduced and plant efficiency may be increased by as much as 5 per cent.

The end result of all these advances in technology will result in reduced operation and maintenance costs by virtue of the larger size of unit and may make it possible to build a steam-electric plant having a heat rate of about 7,500 BTU per kwhr., representing a coal rate of 0.6 lb. of 12,500 BTU coal. The present best coal rate is about .71 lb. per kwhr. representing a station thermal efficiency of 40 per cent.

Ontario Hydro will install in 1961 a 300,000 kw unit. Using our methods of financing – and I must emphasize that these methods are different from those used by private utilities – we estimate that the cost of energy sent out will be 5.14 mills per kwhr. in terms of 1957 dollars on the basis of 7,000 hours' annual use at full load. Looking to the future, we estimate that the production cost

GENERAL VIEW of Calder Hall nuclear power station with its t
cooling towers on the left. In the background is the Windsc
plutonium factory with two large chimneys (right). Owing to the an
of this photograph the buildings appear in close proximity, but Cal
Hall is, in fact, a mile distant from Windsc

CLIMAXING four years of intensive effort, the United States' first full-scale nuclear-electric power plant at Shippingport, Pennsylvania, went "active" on December 18, 1957 supplying power to customers in Pittsburgh. In this photograph the construction staff watch as the core of the 58-ton reactor is lowered into position in the new power plant.





of energy from steam plants in 1980 may be reduced to 4.7 mills per kwhr., in terms of 1957 dollars, for base load operation.

These, then, are the production costs against which nuclear power must compete but, before dealing with the prospects for nuclear power, I would like to point out that if all our future generation requirements were met by constructing conventional steam plants, the coal requirements in 1980 would be of the order of 30,000,000 tons. At $9.00 per ton this represents $270,000,000, all of which would increase the imbalance of Canadian-U.S. trade. Further, to transport the necessary amount of coal to plants located on Lake Ontario would require many ships and use up a considerable portion of the capacity of the Welland Ship Canal as it exists today.

Nuclear Power

The problems involved in making a reliable forecast of the economic prospect for nuclear power are as formidable as those found on the technical side, since most of the important factors affecting costs are undergoing constant change.

There are a variety of moderators and coolants, as well as many different fuel forms. Presumably, sufficient knowledge must be gained concerning all these variants before the economics of the various types can be established. It is almost certain that there will not be one best type applicable for use universally throughout the world since system and national requirements and financing methods must enter into the considerations.

The years 1956 and 1957 mark the dividing line between the emergence of nuclear power from the laboratory and its acceptance into the world's energy market. In October, 1956 the Calder Hall reactor began delivering power to the national grid in England. This is a gas-graphite dual-purpose plant, and the forerunner of several full-scale single-purpose plants now under construction for the Central Electricity Authority. The United Kingdom is undertaking a program of providing 5,000,000-6,000,000 kw of base load plants over the next eight years. In the United States, the most advanced full-scale plant is the Shippingport project in Pennsylvania. Employing a pressurized light water reactor, it "went critical" in December, 1957. Other types such as the boiling water and fast breeder are also under construction in the United States, but are less advanced.

Canada's effort has been mainly in the field of heavy water reactors, including design and construction of a 20,000-kw plant and preliminary design for a full-scale plant. The smaller plant will be primarily built to obtain "know how" in the design of a heavy water moderated and cooled reactor using natural uranium as a fuel. It is not expected to produce power more cheaply than from coal-fired plants, but it will provide valuable experience in operating techniques, and permit an evaluation of the feasibility and economy of a full-scale unit of this type.

Thus, today there is no full-scale, single-purpose nuclear power plant in operation, and hence there is no cost data and operating experience precisely applicable to this type of plant.

United States Predictions

W. K. Davis and L. H. Roddis, both of the U.S. Atomic Energy Commission, predicted in March, 1957, that the cost of nuclear power from plants, which go into service in the period 1957-1959 would range from 20 to 50 mills per kwhr.; from plants going into service in the period 1960-1964 – 10 to 13 mills per kwhr.; from plants going into service in the period 1965-1967 – 9 to 11 mills per kwhr.; and by 1980 they expect the cost to be 6 to 7 mills per kwhr.

These costs are all in terms of 1957 dollars and are based on private utility methods of financing including development costs and are, therefore, not applicable to Ontario Hydro.

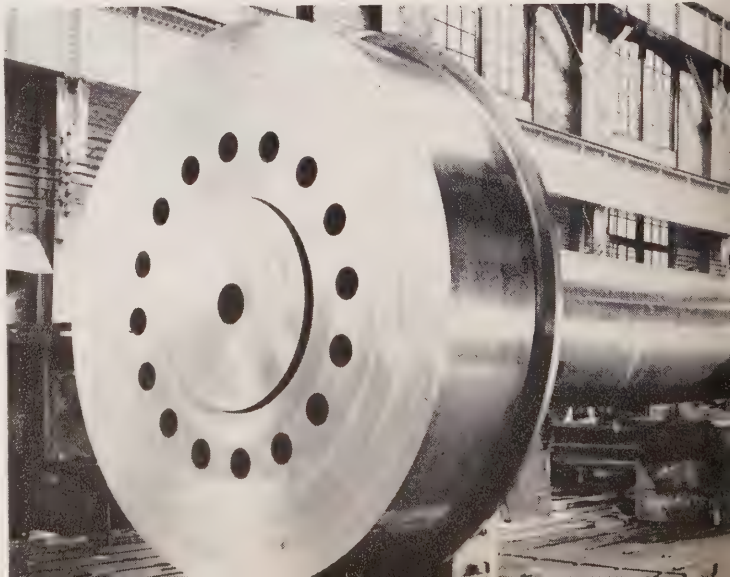
It is interesting to note that the cost per kwhr. for plants going into service now is given as ranging up

(Continued on page 28)

THE SIXTEEN



AERIAL VIEW of the adjoining powerhouses which now span the north channel of the St. Lawrence River. By the end of 1957 a total of 880,000 cubic yards of concrete (approximately 90 per cent) had been placed for Hydro's Robert H. Saunders-St. Lawrence Generating Station (right) while installation of mechanical and electrical equipment was progressing rapidly.



THIS 58-TON STEEL SHAFT is being "readied" for shipment from the Hamilton plant of Canadian Westinghouse Company to the St. Lawrence Power Project for installation. This company shares equally with the Canadian General Electric Company in the contract for the manufacture of the 16 generating units being installed in the new powerhouse.

TITANS

Work is well under way on the installation of generators at the St. Lawrence Power Project

Amid the orderly bustle of construction at Hydro's Robert H. Saunders-St. Lawrence Generating Station, work is already well under way on a significant new phase in the building of the mighty giant.

An Ontario Hydro engineering team is now working closely with the representatives of the Canadian General Electric Company and the Canadian Westinghouse Co. Ltd. on the installation of the first four of 16 generators for the powerhouse, scheduled for initial operation in July of this year.

Fitting the 650-ton generators into the massive Canadian powerhouse climaxes more than three years of work on the St. Lawrence Power Project. For it was in August of 1954 that officials of Canada and the United States, and of Ontario Hydro and the Power Authority of the State of New York, gathered to launch the project.

Since 1954, Ontario Hydro and the Power Authority, working as partners, have directed a peak work force of some 12,000 in bringing the project toward completion. The generator installation work represents the ultimate construction phase on the powerhouse, and will continue until 1960 when the last of the units will go into service.

The immense, 60,000-kva units are being manufactured by Canadian Westinghouse and the Canadian General Electric Company, each of which is supplying eight of the generators. Through rigorous planning, the components for each unit are manufactured, and shipped progressively so that parts for each unit arrive at Cornwall on the precise date that erection of each generator is scheduled to start.

The shipping weight of a complete generator is approximately 1,310,000 pounds, and transportation of the parts from factory to the powerhouse is made by railway or truck. Many of the problems created in handling these behemoths can be readily appreciated for the weight of some of the components is immense. A complete rotor weighs about 250 tons, a stator 145 tons and a shaft 58 tons. Once at the powerhouse, the generator parts are installed in the completed generator pits with the assistance of a 300-ton capacity main gantry crane in the powerhouse.

An interesting feature of the installation is the design of the main thrust bearing. This bearing is designed to carry a load of approximately 1,400 tons, including a hydraulic thrust of some 1,100 tons, due to the turbine and the weight of its shaft and runner. It is also of interest to note that when the unit is working, it will rotate at a speed of 94.7 r.p.m.'s or 1½ times a second.

Each generator is approximately equivalent in height to a three-story house. Each has 56 miles of copper wire and nearly 195,000 punched laminations in its construction. Even more startling is the fact that four of the machines could supply all the power required by a city the size of Hamilton.

Modified Outdoor Type

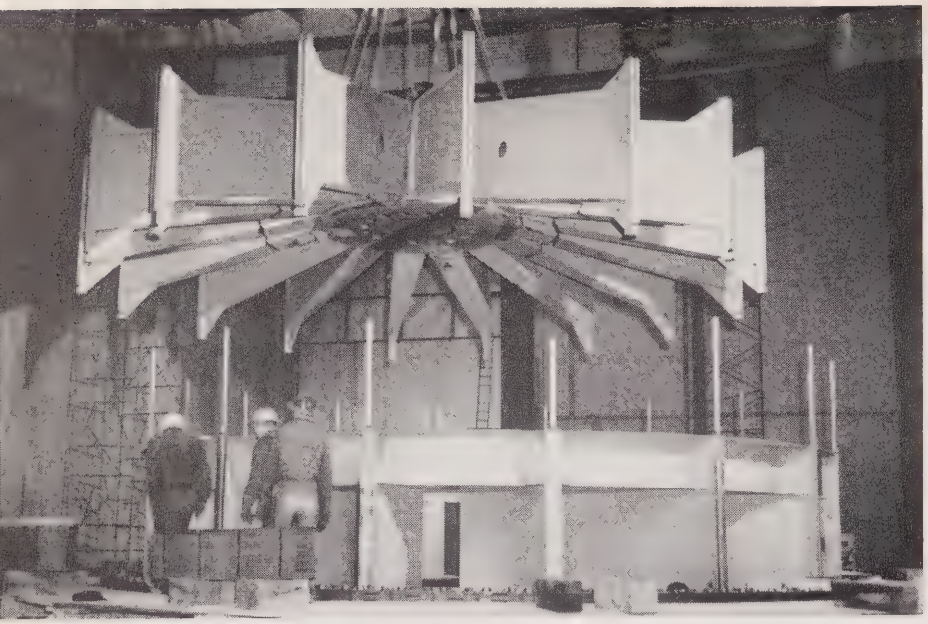
The design of the St. Lawrence powerhouse differs from the majority

(Continued on page 10)





COMPARING bolt sizes, pretty Millie McMullen, a Westinghouse employee, also demonstrates a man-sized wrench (left) used to tighten the 400-lb. bolts on the St. Lawrence generating units.



ROTORS for the generating units are received in the erection bay building. Installation involves careful handling as an assembled rotor weighs about 250 tons.

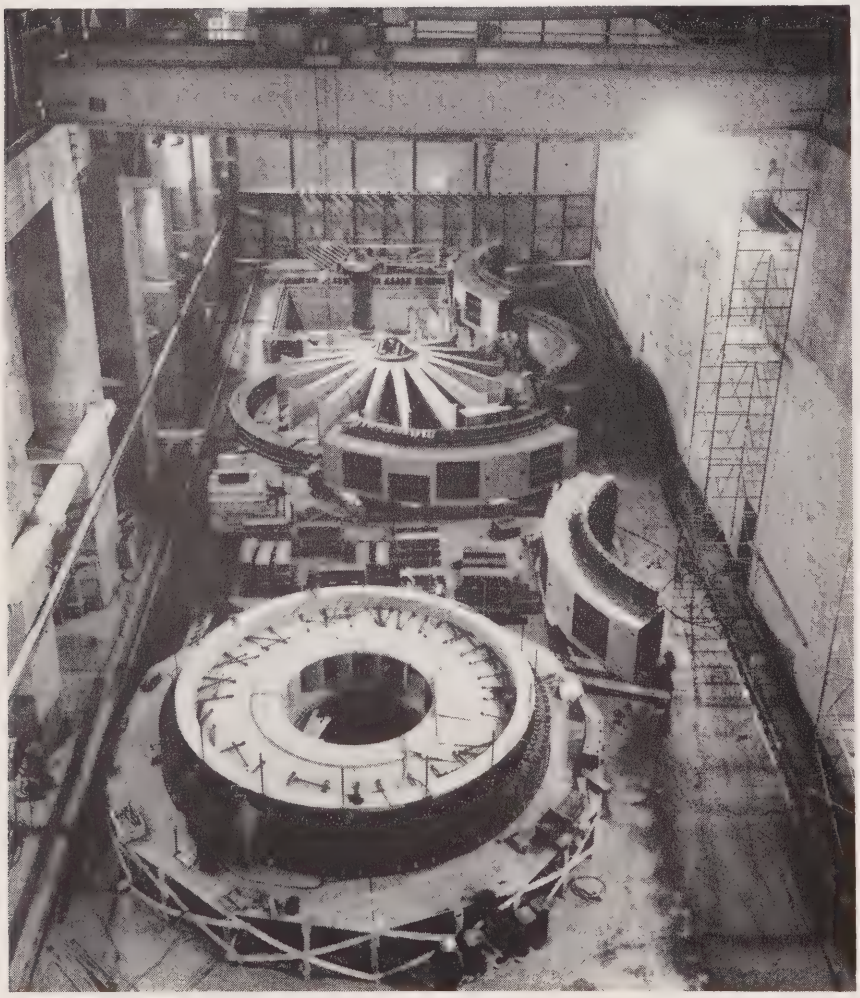
of the Commission's other hydraulic stations in that the plant is of the modified outdoor type. Instead of the conventional superstructure over the generating rooms, the units will be protected by removable covers. These covers split in the middle, and are operated electrically to slide apart on tracks, exposing the generator.

Thus exposed, the individual units are simply lifted out, and can be disassembled and removed by means of the 300-ton gantry crane, to the enclosed erection bay for major maintenance work.

While the installation of the generators testifies to the advanced stage of construction achieved to date on the mighty new powerhouse, work is continuing also on the placing of concrete and the installation of mechanical parts for the matching turbines supplied by the English Electric Company.

By the end of 1957, a total of 880,000 cubic yards of concrete — approximately 90 per cent of the total required — had been placed in the powerhouse. In addition, speedrings for all the turbines were in place.

Now in an advanced stage of construction, the Robert H. Saunders-St. Lawrence G.S. represents Ontario Hydro's last major source of hydro-electric power. When completed, it will contain turbo-generator equipment of the most advanced and efficient design, representing a major addition to the Commission's resources. ■



ASSEMBLY OF ROTORS is in progress here. In the foreground laminations for one unit have been assembled, while work is in progress on another unit in the background.



Photographs by the Huron Expositor

RENOVATED Seaforth Town Hall has an attractive main entrance leading to a ground floor lobby. This, in turn, provides access to the utility and town clerk's offices.

SEAFORTH "DRESSES UP"

ONTARIO utility commissioners, faced with the responsibility of arranging financing of new buildings, will sigh wistfully at the information that tenders for construction of the Seaforth Town Hall, ranging from $9,700 down to $9,550 were rejected as being too high. Young and Causey, a Stratford firm, was ultimately awarded the contract on a bid of $8,250 for building the three-storey civic structure – complete with clock tower.

Of course all this "dickering" took place in the year 1893. Despite its mellow 64 years, the municipal headquarters is still standing, is still giving service and has been provided with a new look – for $10,000.

This information came to light in the recent remodelling of the building, including offices of the Seaforth P.U.C. headquarters, located in the north wing. No longer do utility customers have to walk up outside stairs to reach the local commission offices, for the old wooden staircase structure has been eliminated, and replaced by a modern entrance. Customers now enter at ground level through a main lobby, illuminated by large glass panels fitted into the space formerly occupied by the staircase.

The commission's refurbished headquarters now include a public office, accommodation for Manager R. B. Holmes, and a board room for commission meetings. Walls are finished in wooden panelling. Space has been provided nearby for storage of meters and other equipment, while a 40 x 35-foot addition at the rear of the renovated building now serves as a utility garage. These remodelled commission quarters, rented from the municipality, are self-contained.

The improvements are typical manifestations of the progressive attitude of Seaforth citizens, for the town was an early member of the "Hydro family." Hydro service was inaugurated in the municipality on December 1, 1911, after a favorable 370-42 vote by the ratepayers on August 7, 1910. The change to Hydro service followed a public meeting on August 1, 1910 addressed by (Sir) Adam Beck, first Chairman of the Commission.

During 1911, the year Seaforth became a Hydro municipality, there were 293 customers, while the total load was approximately 180 kilowatts. Progress in the subsequent 47 years is best indicated by a comparison with present figures, which show that the Seaforth commission is now serving some 800 customers, while the load supplied is approximately 1,500 kilowatts.

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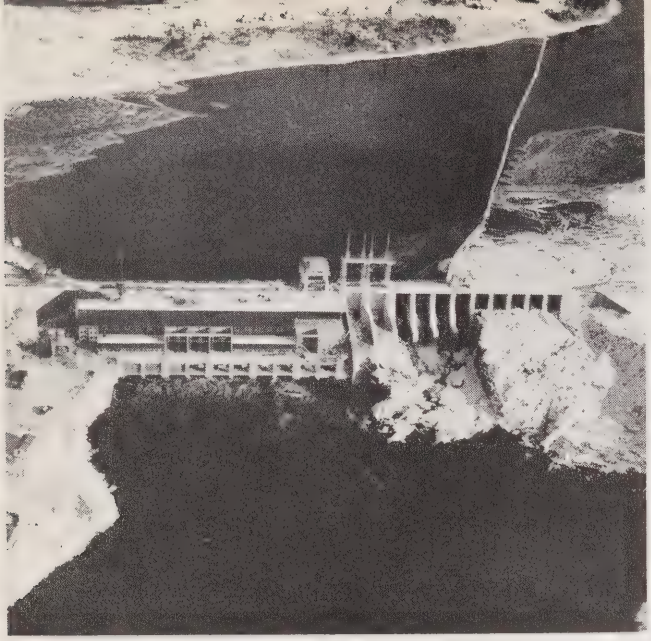


NEW OFFICES of Seaforth P.U.C. are bright and modern in appearance. Mrs. Marie Hiusser, Secretary, is preparing monthly bills.



READY for a day's work, the Seaforth P.U.C. staff includes, left to right· Gordon Pullman, Charles Reeves, Ray Boussey, Manager R. B. Holmes, James O. Scott and Ronald Draper.

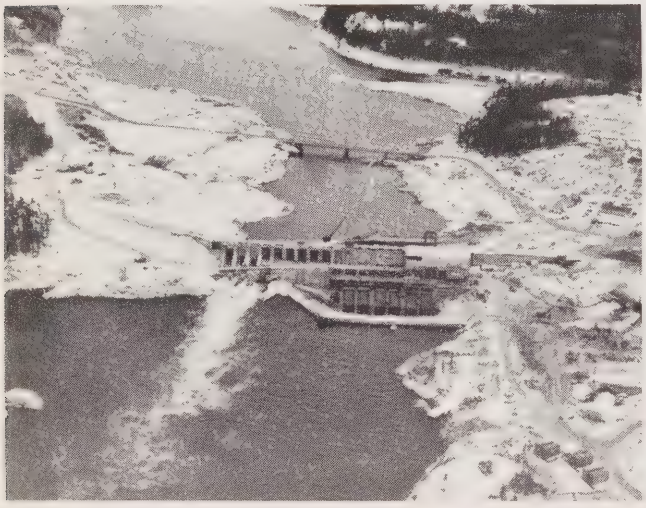
POWER PANORAMA



MOVING toward completion is the new Manitou Falls Generating Station where installation of a fifth unit has been underway to give the English River plant a total capacity of 65,700 kilowatts.



(Photography by E. A. Johnston)



READY "to go on the line" is the new Whitedog Falls Generating Station on the Winnipeg River. The new northwestern Ontario plant will have a total capacity of 54,000 kilowatts.

CONSTRUCTION ACTIVITY at the Silver Falls project is concentrated mainly on the excavation and building of a 10,400-foot long tunnel to convey water from Dog Lake to the powerhouse. The downstream portal of the tunnel is visible in the foreground, while the location of the subterranean passage is indicated by the narrow clearing in the wooded section on the hilltop.

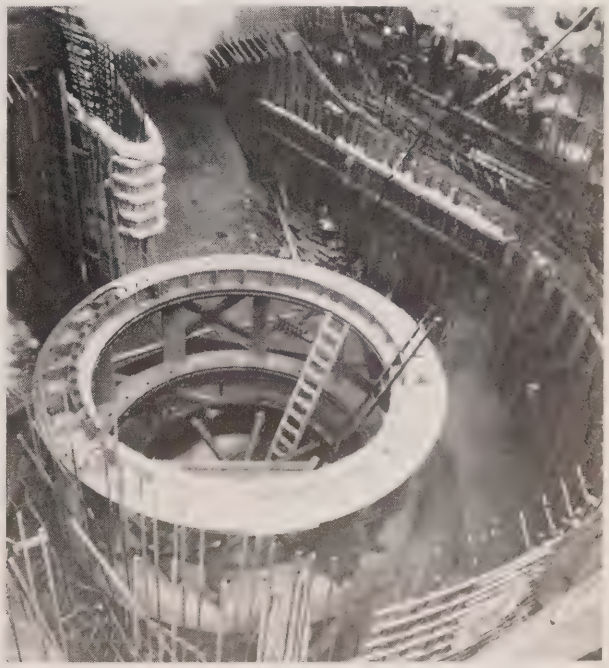


RETURNING from a recent trip through northwestern Ontario, an Ontario Hydro photographer brought back a comprehensive selection of views (some of which are reproduced on these pages) that forcibly portray the extensive operations of Ontario Hydro construction and engineering forces in that busy, rapidly-growing section of the province. Calling at two of Hydro's three Nipigon River plants, he found intense construction activity centred around the installation of one additional unit at each of the Alexander and Cameron Falls Generating Stations to increase their capacities to 60,900 and 76,700 kilowatts respectively. Pushing on he focused on the Silver Falls project on the Kaministikwia River, 30 miles northwest of the Lakehead, where men and machines are driving a 10,400-foot-long tunnel to bring the 45,500-kw. plant into service next year.

Plunging into less settled country in the English-Winnipeg Rivers area north of Kenora he found work well-advanced on the installation of a fifth, 11,500 kw. unit at Manitou Falls. He discovered too that work at the 54,000-kw. Whitedog Falls development on the Winnipeg River was proceeding on schedule with three units ready to "go active" early this year. Then at the nearby English River Caribou Falls project he noted construction crews making rapid advances at this new power site, which will augment Commission resources by 67,500 kw. in the summer of 1958. ■



DESPITE severe winter conditions, construction continues unabatedly at Caribou Falls, another English River project, which is scheduled for completion later this year. This view shows work in progress on the 1,800-foot long main dam.

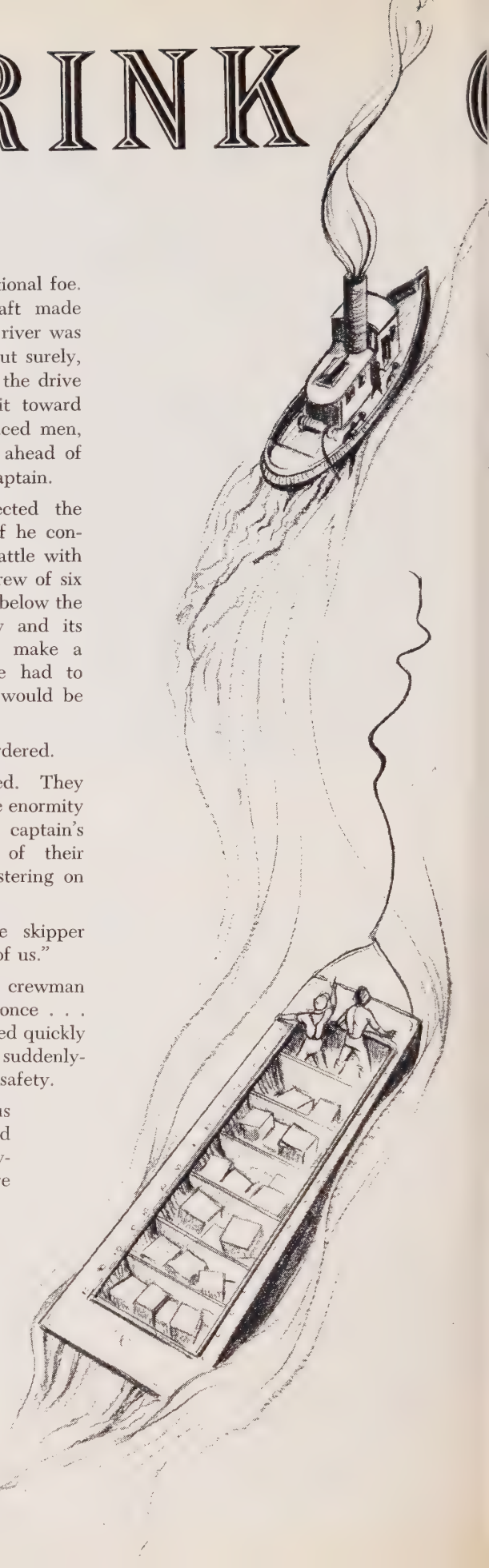


PROGRESS is evident in this view of speed ring assembly operations at Cameron Falls G.S., Hydro's "parent" Nipigon River plant where another unit is being installed. Scheduled for completion this year, the extension will raise the capacity to 76,700 kw.



DEEP SNOW blankets girders of the new section of the powerhouse at Alexander Generating Station on the Nipigon River where construction workers are installing a new, 11,300-kw. unit.

BRINK



Feeling the dead weight of the steel scow it was towing, the tug snorted and struggled against the downstream pull of the Niagara River rushing towards the Horseshoe Falls little more than a mile below. It was warm that August 6 in 1918, and the crew worked stripped to the waist. Even the captain had to acknowledge the heat, removing his peaked cap periodically, and dabbing at his moist forehead with a large handkerchief.

More than the heat was bothering the captain. At the end of the taut towline, the sturdy scow, with its crew of two, stubbornly bucked the heavy current, seeming to slap around like a live thing.

The captain watched the shoreline carefully. This work was hazardous at the best of times, and today they seemed farther downstream than they had ventured before. Strong man though he was, phlegmatic from his constant fight with the river, he felt a cold chill in that August blaze, thinking of the awesome precipice that could snatch them and hurl them into eternity with the slightest error in judgment.

Suddenly he stiffened. He had thought the tug past that point on the shoreline. Was it now ahead of them? His eyes, squinted by thousands of suns, narrowed and assumed a concentrated expression while he held his breath.

The crew, with that telepathic instinct of men who have long worked together, swivelled their looks from their captain to the shore. One of them gave a hoarse shout.

"We're losing way, sir!" he cried.

"Full speed ahead!" roared the captain.

Quivering in every last rivet, the tug took issue with its traditional foe. Momentarily, the small craft made headway, but the turbulent river was not to be denied. Slowly, but surely, the weight of the scow and the drive of the river were pulling it toward certain doom. The white-faced men, fully conscious of what lay ahead of them, looked again at the captain.

The captain's face reflected the dilemma that faced him. If he continued to fight the losing battle with the river, the tug with its crew of six would be smashed to pieces below the Falls along with the scow and its crew of two. He had to make a desperate decision, and he had to make it in an instant or it would be too late.

"Cut the tow-rope!" he ordered.

His men stood transfixed. They had not yet fully grasped the enormity of their situation, and the captain's command, dooming two of their comrades, was slow in registering on their fear-dulled minds.

"Cut the tow-rope!" the skipper barked. "It's them – or all of us."

Stepping to the stern, a crewman raised the weapon . . . once . . . twice . . . the captain turned quickly to the task of working the suddenly-lightened tug upstream to safety.

Aboard the scow, Gus Lafberg, a 48-year-old Swede, and his fellow-worker, George Harris, were going about their business. Their one thought was of the unbearable heat . . . of the pleasure of getting ashore, and enjoying something cool. As men will who toil in danger, they had shut their

F ETERNITY

by Horace Brown

ears to the viciousness of the river and the awesome sound of the cataracts so uncomfortably near them.

The Truth Dawns

Lafberg mopped at his streaming forehead, straightened up to gaze past Harris at the tug. He saw the bright flash of something in the sun.

"The towline!" he said, but it was a whisper against the rage of the waters.

The ungainly scow gave a lurch, throwing Harris against the side. Then, gaining unbelievable speed, it plunged downstream as the river playfully picked up the huge toy and flung it towards a suicidal plunge over the "Horseshoe."

Rooted to the spot for a dread moment, Lafberg flung himself into frenzied action. Only seconds separated the pair from inevitable death.

"The cocks!" he yelled. "Open the cocks!"

With presence of mind few men show in the face of the worst danger, the two began opening the plugs in the bottom of the scow. The river entered eagerly, reaching for them.

The Falls drew nearer and nearer. The men clung to the sides of the pitching, tormented craft, fear staring from their eyes. Gradually, its forward pace slowed down as the water rose through the bottom, and it settled along the shallows of the rapids. Then it grated against the river bottom, clanging in protest throughout its length. A fanged rock bit a big hole in the steel, and the water now poured in to settle the scow more firmly.

For seemingly eternal moments, the blunt-nosed vessel teetered in the direction of the Falls' brink, waiting some 1,900 feet away. Then it stuck broadside against the water about 700 feet offshore. The river, maddened at this obstruction, pounded at the steel with the force of a 1,000 riveters, and threw tons of angered water in waves over the craft.



STILL POISED near the brink of the Horseshoe Falls where it was "grounded" on a fateful day in August, 1918, the sturdy steel scow has confounded predictions that it would disintegrate in a few days.

"She'll go at any moment," groaned Harris.

Lafberg worked his way towards him, put a large hand firmly on his shoulder.

They felt the scow shift uneasily on its rocky bed, make a slight forward movement. What breath they had left was expelled, then sucked in again, as it finally held fast.

In minutes the shore was dark with horrified and anxious onlookers. Newspapermen rushed to the scene of the impending tragedy. The sight of frail humans pitted against the might of the Falls, obscured for a moment even the good news of the Allied advances on the Western Front.

Rescue Operations

Rescue operations were organized immediately. They were hampered at the outset by some respect for international boundaries and regulations, but common sense soon prevailed, and the U.S. Coast Guard shot a line to the entrapped men from the roof of the Toronto Power Company plant.

Lafberg and Harris both grabbed for the looping rope. It began to slide from their grasp, but they whipped it about a stanchion, and made it secure.

A breeches-buoy was sent over the lifeline. It dipped lower and lower on the sagging rope, was caught by

(Continued on page 16)

the tumbling water, flung in myriad directions until the lines were fouled.

The watching thousands groaned. It seemed the men were to be sacrificed to Niagara, the Indian legend of the maid in the canoe to be replaced by the reality of two men on a scow. At any moment, it was expected, the inexorable rush of the waters would carry them over the precipice.

Tom Dorrington, a rigger, had been at work with a scaling outfit on the Ontario Power plant, removing loose rock from the face of the Niagara cliffs above the station. Today, living quietly in retirement in Toronto, he recalls that memorable day.

Impatient of the methods used, Dorrington said that a snatch-block should be attached to the line to prevent it from sagging too far into the river. The would-be rescuers scoffed at this suggestion, and left for Youngstown, N.Y., to obtain some new equipment.

While they were gone, Dorrington and a fellow-rigger, Charles Fossett, brought down the line, complete with snatch-block, they had been using in their scaling. With the assistance of Captain A. D. Nelson, a Niagara lifesaver, Fire Chiefs Richard Miller and A. H. Newman and their crewmen, and Fred Daubney, a truck driver, together with scores of other willing hands, they rigged a new line, which was pulled as far towards the scow as possible by the trapped men.

When the original rescue team returned from Youngstown, they tried to take over operations again. Husky Tom Dorrington picked up a handy monkey-wrench, and balanced it suggestively in his hand. It was sufficient to keep him in control of the rescue operations.

With the line in place, it held above the river, but the original line was fouled. Who would clear it? Tom Dorrington wanted to try, but was dissuaded. It was pointed out his 190 pounds would cause the rope to sag too much.

Into this scene of Wagnerian suspense stepped a volunteer, a man with flaming red hair and wiry body, the famous riverman, William (Red) Hill, Senior. Already legendary along the wild stretches of the Niagara, he was to live to be one of the few men to go over Niagara Falls in a barrel.

War Veteran

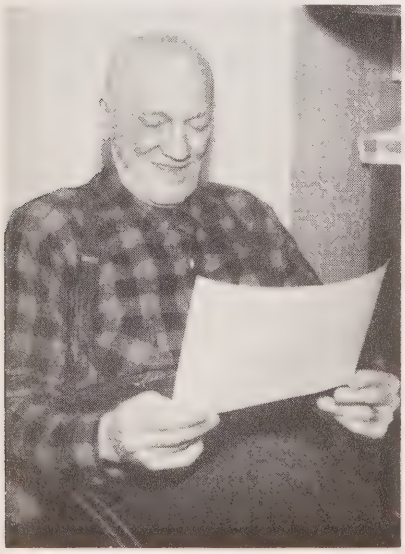
Everyone in that intrepid circle had respect for "Red" Hill. But they had fears, too. "Red" had served overseas with the 58th Battalion, was twice wounded and gassed, and had returned to Niagara Falls, supposedly a mere shell of the man who had gone away.

"I can do it," he volunteered.

The macabre intensity of the setting seemed only possible as a prelude to tragedy. Even to these strong men, the heat was literally unbearable. The furnace of the sun bore fully on those on shore and on the two whom Fate held balanced on her hand. On the powerhouse roof it grilled the flesh of the rescuers, but nobody thought of quitting. On the scow, the steel became too hot to touch. To add to the agony, particularly of the two unfortunates who awaited rescue, was the uncertainty of how long the scow would remain in its present position. The general opinion among these experts was that it "might go at any time."

Lafberg and Harris were men in torment. At that time there was no method of communicating with them. They could only watch the work on the power plant roof and hope, while their ears were assailed by the sound and fury of the Niagara rapids.

THOMAS DORRINGTON, now living in semi-retirement in Toronto, vividly recalls his part in the rescue of two men from the scow.



ALTHOUGH it has not moved in 40 years, the derelict vessel is beginning to show the ravages of time and the effects of its heavy pummelling by the churning Niagara waters.



In spite of the heat and the difficulties he faced, "Red" Hill went cooly about his volunteer task. Accustomed to taking unbelievable risks with calculation, the lithe riverman weighed all his chances, and was satisfied. That comparatively thin and swaying rope over the plumed waters between shore and scow would have seemed a strand of spider's web to most humans. To the veteran of the river it was a good, stout link on which he was willing to risk his life.

The breeches-buoy, stuck out in the current, was pulled back to the power plant roof. Then it was Red Hill's job to untangle the fouled lines, and get the line with the snatch-block to the scow. To do this, he was placed in the breeches-buoy, and eased out over the river. Anyone who has seen the Niagara at this point so near the Falls, where the river "shallows" suddenly and picks up speed over the rocks so that its waves seem to be lashed by a constant hurricane, will realize this was no place for any man unable to keep his nerves in deep-freeze.

For hours Red Hill worked at the Chinese puzzle of the fouled lines like a fisherman taking a tangled backlash out of a line. Even his comparatively



light weight sagged the line to water level. Peril never left him for a moment.

Feeble Efforts

On the scow Lafberg and Harris — men with as much courage as the man bent on their rescue — tried to help. But their efforts became more and more feeble. The ordeal they were undergoing was plainly stamped on their faces to those who viewed them through binoculars from the shore.

An eyewitness was a reporter of the Niagara Falls *Evening Review*, who wrote the following account for the August 8, 1918 edition:

"When the small ropes became entwined about the big line carrying the breeches-buoy . . . and the life-safers on the roof were unable to get the little messengers of safety to the men, he (Red Hill) went into the buoy and was pulled out halfway on the line. He dislodged the fouled ropes, and was drawn in again. Still the buoy would not travel smoothly, and at 8.20 o'clock Hill was again sent out in the buoy. He got to within 125 feet of the scow.

"Hill found one of the smaller ropes wound around the big line eight times. He was near enough to the scow now to talk to Harris and Lafberg. They were making feeble efforts to dislodge the fouled rope, but were unable to do so because they were weak from hunger and exposure. Hill untwined the rope. But when he turned to give the signal for his return he found the ropes behind him fouled. Before he could be drawn back to the powerhouse roof, Hill had to unfoul those ropes. He was drawn into safety at last, and the way was clear for the passage of the little buoy from the roof to the scow."

(Continued on page 29)

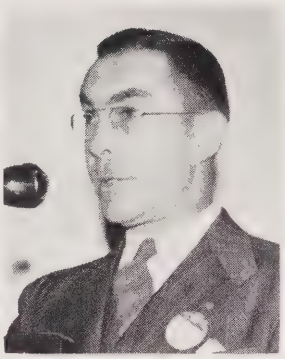
TWO MEN were quickly rescued from the privately-owned cutter, the "Sunbeam", which was carried into the rapids and came to rest a short distance upstream from the scow on May 20, 1923. The cutter (right) gradually disintegrated and disappeared in 1941.



TELLING THE "HYDRO



AMES S. DUNCAN
rio Hydro Chairman



W. J. WYLIE
Toronto Hydro



HARRY J. FOY
Electric Service League

CANADA'S second observance of National Electrical Week, February 9-15, this year had special significance for representatives of Ontario Hydro and the associated municipal electrical utilities.

Already a comprehensive educational and promotional program, based on the theme "Live Better Electrically" has been launched as a co-operative undertaking by the municipal systems and Ontario Hydro.

Inaugurated in response to requests from the municipal utilities, this promotional program, still in its formative stages, will have special appeal for domestic customers, emphasizing the role of electricity as an economical, clean and safe source of energy in the home. The program is designed primarily to promote the most effective and widespread use of electricity in the home and on the farm.

Advertising Program

Through the medium of Ontario Hydro and municipal utility advertisements in Ontario daily and weekly newspapers, special truck and window display cards, promotional literature and special supplementary demonstrations to be initiated by the Commission within a short time, the story of Hydro service and its countless advantages will be laid before the householder.

Then, too, public scrutiny will be directed to the ingenious developments taking place in the electrical appliance field, which will exert a vital and almost miraculous influence on the standards and mode of living in the average Ontario home.

Commencing in December, 1957, the advertising campaign stressed the theme of Christmas by illustrating a few of the electrical appliances, which make useful and acceptable gifts. These include power tools, trains, frying pans, coffee-makers, blankets, mixers, heat lamps, television sets, etc. January advertising stressed the theme of economy – the average price of electricity used on the farms and in the homes of Ontario actually went down four per cent between 1940 and 1956, contrasted with an increase of 80 per cent in commodity prices generally (based on the Consumer Price Index) during these same years.

National Electrical Week

Thus this full-scale Ontario utility program, while independent of other promotional campaigns, is supplementing and amplifying the overall theme of National Electrical Week.

Sponsored by the Canadian Electrical Council, representing every segment of the nation's electrical industry, National Electrical Week provided an opportunity for municipal electrical utilities to promote adequate wiring programs in their respective communities.

Under the direction of the Electric Service League of Ontario a provincial committee was organized last fall to promote this year's observance throughout the province.

An Honorary Provincial Committee for Ontario, with Ontario Hydro Chairman James S. Duncan as Honorary Chairman was also organized. Other members of this Honorary Committee were: Gordon H. Fuller, President, O.M.E.A.; G. R. Davis, President, A.M.E.U.; O. W. Titus, President, Canada Wire and Cable Company; J. Herbert Smith, President, Canadian General Electric Company, and G. L. Wilcox, President, Canadian Westinghouse Company.

Provincial Committee

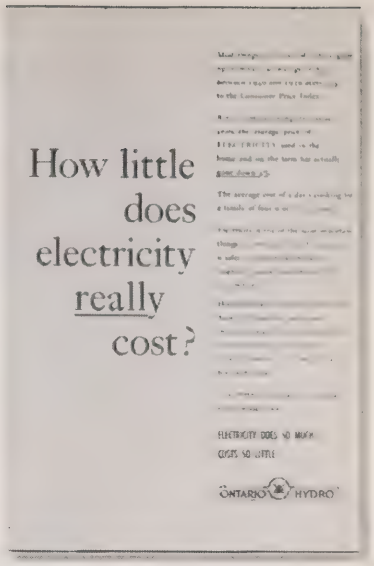
W. J. Wylie, Director of Consumers Service, Toronto Hydro-Electric System has been Chairman of the Provincial Committee, which has co-ordinated arrangements for Ontario's observance of National Electrical Week this year. With Harry J. Foy, Manager, Electric Service League of Ontario, as Secretary, the committee also included three representatives from each of the following organizations: Ontario Hydro – I. K. Sitzer, J. A. Blay, and W. R. Harmer. O.M.E.A. – Bert Merson, Toronto Hydro-Electric System; W. B. Elliott, St. Catharines P.U.C., and F. R. Kaupp, Merritton H.E.C. A.M.E.U. – D. N. Durward, Galt P.U.C.; L. S. Treuge, Windsor U.C., and W. C. Lewis, Ottawa H.E.C. Electric Service League of Ontario – W. J. Wylie, Toronto Hydro-Electric System; W. N. Herod, Canada Wire & Cable Co., and H. J. Foy, Electric Service League. Canadian Electrical

STORY"

Distributors' Assoc. Inc. – Eric Hall, Canadian Westinghouse Supply Co.; Ben Steen, Zenith Electric Supply Ltd., and Norman Franks, C.E.D.A. Inc. Canadian Electrical Manufacturers' Association – T. Edmondson, Packard Electric Co. Ltd.; T. A. Lindsay, Phillips Electrical Co. Ltd., and Peter A. York, Amalgamated Electric Corp. Electrical Contractors' Association of Ontario– S. Myles, London; Wm. Barreca, Toronto, and J. Carroll, Tillsonburg. Canadian Lighting and Fixture Manufacturing Association – J. Lang, Lang Bros. Specialty Co. Ltd.; W. H. Singer, Richard Singer & Sons, and John Rice, Noma Lites Canada Ltd. Ontario Association of Radio and Appliance Dealers – J. A. Ireland, President, O.A.R.A.D.; J. H. Jardine, Vice President, O.A.R.A.D., and Wilf. Hodgins, Secretary-Manager, O.A.R.A.D. International Association of Electrical Inspectors – R. G. Ellerker, Northern Electric Co.; N. A. Cockburn, Canadian Standards Assn., and A. J. McVeigh, A. J. McVeigh Co. Canadian Association of Radio and Television Broadcasters – C. W. Fenton, Radio Sales Director, C.A.R. & T.B., and K. A. Steeves, T.V. Sales Director, C.A.R. & T.B. Publishers – Victor Manser, Publisher, Hugh C. MacLean Publications; F. Russell, Editor, MacLean Publications Ltd., and E. J. McCarthy, Publisher, Smith-McCarthy Pub. Co. International Brotherhood of Electrical Workers – J. H. Raymond, Intl. Vice Pres., I.B.E.W., and A. Mathews, Intl. Field Representative, I.B.E.W.

Regional committees, consisting of representatives of the O.M.E.A. and A.M.E.U., together with the Ontario Hydro Consumer Service Engineer, have been responsible for the organization of activities at the municipal level within each of the Commission's nine regions. ■





NEWSPAPER ADVERTISING is a major feature of the "Live Better Electrically" educational program instituted by Ontario Hydro and the associated municipal electrical utilities. See full-page reproduction of the advertisement (right) on this month's back cover.



OBSERVANCE of National Electrical Week this month has provided municipal commissions with an opportunity to promote adequate wiring supported by display material and other literature distributed through the Electric Service League of Ontario.



AERIAL VIEW OF THE ZAMBESI RIVER AT THE SITE OF THE KARIBA PROJECT

"HYDRO" AROUND THE WORLD

IN BRIGHTER AFRICA



by REX REYNOLDS

South Rhodesian author and journalist.

What the Kariba Hydro-Electric Project means to the Rhodesias and Nyasaland

Construction of the Kariba hydro-electric scheme on the Zambezi River has been described as "the most important single event in the history of the Federation of Rhodesia and Nyasaland."

Over the past few years, these territories have been progressing economically at a rate that may truly be described as phenomenal. If the new state is to fulfil its promise and solve its considerable social and economic problems, that rate of development must be maintained and even accelerated.

The two chief limiting factors are power and transport, and they are closely inter-connected.

In the past, the railways have had to devote much of their limited capacity to transporting coal from the western section of Southern Rhodesia, to the widely scattered centres of consumption. Thermal power stations use the bulk of the supply and shortages amounting to crises have occurred regularly.

In the year 1954-55, the consumption of electricity was about 1,800,000,000 kilowatt-hours; during the following year this increased nearly 16 per cent and the demand is continuing to rise.

The copper mining industry, economic backbone of the Federation, has been planning substantial expansion by 1960-61—provided the power is available. Other mineral development, primary and secondary industries, agriculture and even commercial and domestic facilities are dependent on the rapid increase of supplies of electricity.

By 1960 the demand is expected to rise to 3,200,000,000 kilowatt-hours, and by 1970 to 7,200,000,000 kilowatt-hours.

Two Stages

It was against this background that the Federal Government, after full investigation and advice from world authorities, decided to proceed with the Kariba scheme. It is planned in two stages, of which the first, with an installed capacity of 500,000 kilowatts, is estimated will cost about $216,000,000.

The cost of the complete scheme, with 1,200,000 kilowatts installed, is estimated at about $299,700,000. It was probably the greatest single financial commitment ever undertaken by a country, relative to its general economy.

To save a vital year in supplying power, the government decided to go ahead with preliminary work even before finance for the scheme was assured. Meanwhile, an application was made to the International Bank for Reconstruction and Development (the "World Bank") for a loan, and their experts made a thorough investigation into economic, financial and technical aspects of the scheme.

Reducing Consumer Costs

The World Bank is lending $80,000,000, The Colonial Development Corporation $40,500,000, and the Colonial Development Finance Company $8,100,000. The balance will be found by the Federal Government, which will borrow from the four producing copper companies, the British South Africa Company, and Barclays and the Standard Banks.

At present the average estimated cost of producing electricity in the

(Continued on page 22)

IN THE EARLY STAGES of construction a cableway was built to provide access between both banks of the turbulent river. A suspension bridge and a heavy-duty bridge now facilitate movement of supplies and equipment.



SEVERAL ROADS have been carved from the sides of the gorge to enable workmen to reach the river bed and commence construction of the dam, which will be 416 feet high.





main thermal stations in the Federation is 0.728 of a penny per kilowatt-hour, and this tends to rise with all general rises in costs, particularly of fuel.

When generation starts at Kariba and only a fraction of the ultimate capacity is employed, the cost of power to the main sub-stations is estimated at 0.869 of a penny. By 1962 it is estimated the cost will drop to 0.588 of a penny, and to continue falling until in 1972 it will be only 0.283 of a penny — a little more than one-third of today's cost. This allows for meeting all the loan charges, including repayment.

Compared with the expansion of thermal stations, it is calculated that Kariba will show a cumulative saving by 1971 of $118,800,000, and thereafter an annual saving of about $27,000,000.

The project is to construct a dam across the Zambezi at the Kariba Gorge, to build two power stations, one on each side of the river, and to erect 330,000-volt transmission lines from Kariba to Kitwe, Umniati (frequently called Sherwood) and Norton and between Salisbury, Norton, Umniati and Bulawayo, representing a total mileage of 925 miles.

The dam wall will be of the pure arch type in mass concrete, about 416 feet high from the river bed to the level of the roadway and about 80 feet thick at the bottom. By way of illustration, this is some 60 feet higher than Victoria Falls and just 50 feet lower than the Bank of Commerce Building in Toronto.

Hoover Dam

The lake to be created behind the dam will be about 175 miles long, with a maximum width of about 20 miles. It will cover about 2,200 square miles and store some 130,000,000 acre-feet of water—about four-and-a quarter times the capacity of the world's largest existing man-made reservoir, the Hoover Dam in the United States.

The lake will provide a very high degree of regulation of the flow of the Zambezi: it is anticipated that 84½ per cent of the water can be used for generating power, the balance being lost by evaporation and over the spillway at times of flood.

The power stations will be constructed underground so that the turbines will obtain the maximum power from the available head of water. They will be 460 feet long, 65 feet wide and 100 feet high from the machine hall floor to the roof. Between them, they will contain 12, 140,000-horsepower turbines each driving a 100,000-kilowatt generator.

In the first phase of the work, five of these will be installed in the power station on the south bank. The units are scheduled to come into operation successively between January, 1960 and September, 1961.

Remote Site

The dam site is remote and in difficult terrain. While drilling and other preliminary work was in process, temporary access roads from the north and south were constructed. Now, permanent all-weather roads totalling some 90 miles in length are nearly complete.

The north access road will have to carry more than 300,000 tons of cement alone over the next three-and-a-half years. Special railhead facilities to handle heavy plant equipment and supplies have been constructed at Lion's Den in the south and Kafue in the north.

On the site, housing, roads and all the other facilities of complete townships are being provided for a labor force of about 1,100 Europeans, 6,500

Africans and their families. First a cableway, then a suspension bridge and finally a heavy-duty road bridge were constructed to give access between banks.

Carved From the Rock

To divert the waters of the Zambezi while the central section of the dam wall is being built, a tunnel 33 feet wide, 40 feet high and 1,300 feet long has been cut through the rock of the south bank, and a diversion channel through the north bank cofferdam.

Supplies of rock, gravel and sand have been opened up, and vast plants constructed for handling them and producing concrete. Platforms for Blondin cables are being built on either side of the river. The first powerhouse, with its access tunnels and shafts, is being carved out of the rock of the south bank.

In London, Paris and Grenoble, exhaustive tests have been carried out on models to check every aspect of design and construction.

It was not to be expected that such a scheme, however carefully planned, would be carried through without problems and even adversity.

A calculated risk was taken in designing the north bank cofferdam to cope with flood levels above the average, but not exceptional: the peak floods in the 1956-57 wet season were the highest since recording started 51 years ago. The cofferdam was flooded and work on this section of the project has been held up.

Program Well Advanced

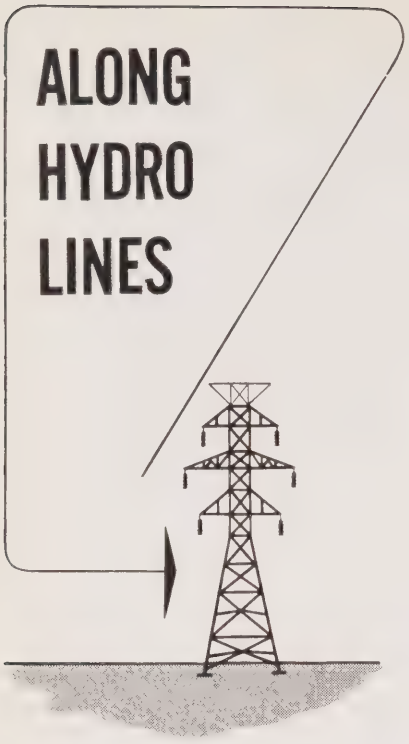
In spite of this, the overall program is well advanced, and there is no reason to believe that the first stage of the Kariba hydro-electric scheme will not be completed, and much-needed power delivered on or even ahead of schedule.

Sir Malcolm Barrow, the Minister of Home Affairs and Power for the Federation of Rhodesia and Nyasaland, wrote recently: "It would not be rash however to predict that the full potential of Kariba in both stages will be exhausted by 1970 and that by then we should have made a start on other generating stations to serve the main region." ■





A TUNNEL, 33 feet wide and 1,300 feet long, has been excavated in the rock of one bank to divert the Zambesi while the central section of the main dam is being built



Plan Hydro Office For Elliot Lake

Ontario Hydro is planning to establish a permanent Hydro sub-area office at the Elliot Lake townsite near Blind River, Ont. The new office will operate as a unit of Hydro's Algoma Area, which has headquarters at Blind River.

Establishment of the new sub-office will entail appointment of a supervisor and small staff to handle electrical service and customer contact in the growing uranium-mining centre.

At a recent co-ordination meeting, residents were told that additional Hydro line staff would be made available to handle the increasing service requirements of the district.

Utility Requests Aerial Regulation

Following an hour's power interruption in a large area resulting from a television aerial falling across a 13,000-volt line, Kitchener P.U.C. has requested the city council to prohibit installation of aerials in any position where an accident could cause contact with distribution lines.

Raise Service Security With Fourth Feeder

St. Thomas' industrial area now has two independent sources of power supply. One connects directly with Ontario Hydro facilities, and another is linked with a P.U.C. substation. To provide greater system security, the city's supply lines were recently increased from three to four, following an agreement between the local utility and the Commission, under which St. Thomas took over for its own use the 15,000-volt feeder running directly from Ontario Hydro's local transformer station.

Morrisburg Superintendent Killed in Car Collision

Douglas J. Stitt, Superintendent of the Morrisburg Hydro-Electric Commission, received fatal injuries when the panel truck he was driving was in collision recently with a car at the intersection of Highways 31 and 401. In his 55th year, Mr. Stitt had served the Morrisburg Commission for 26 years. Born at Morrisburg, the well-known utility executive attended schools in that town. After completing his education, he held several positions, including one with Ontario Hydro at Cornwall. In joining the Morrisburg Hydro staff, he succeeded his father, who was one of the first electrical employees in that municipality. A Past President of the Eastern Ontario Metermen's Association, Mr. Stitt served his community unstintingly in many capacities.

Inaugurate Pension Plan for "Over-45" Employees

Sudbury Hydro Commission has approved a new annuity plan which will benefit new employees over the age of 45, or staff members, who decide to participate in a pension plan after they pass the 45-year limit. This scheme, which has been under study for several months, has had the approval of the Ontario Government. Sudbury Hydro is also affiliated with the municipal Hydro pension and insurance plan, which now operates for employees who join a Hydro staff prior to reaching the age of 45.

Plan Honor For H. O. Hawke



H. O. HAWKE

A Past President of the Ontario Municipal Electric Association and a tireless servant of his community, Harvey O. Hawke, of Galt, will be honored when a new municipal substation is given his name. He has been a member of the Galt Commission for over 36 years and has been its vice-chairman and chairman on many occasions. He was recently re-elected to the Galt Commission by acclamation. Before being elected to Galt Commission he had served on the Board of Education for two years as well as three years as an alderman.

Lay Second Cable To Amherst Island

Designed to augment power supply to customers on Amherst Island, near Kingston, a second cable has been laid by Ontario Hydro construction crews. The first cable was laid in 1937, and since that time Hydro service for the islanders has been gradually extended, requiring the installation of the second cable to assist in meeting increasing demands.

Listowel P.U.C. Purchases Downtown Office Building

Listowel P.U.C. has purchased a building presently housing the utility's office. The building, which is located on Main Street in the centre of the town's business section, cost $12,500.

The Listowel utility recently received Ontario Hydro approval for a total expenditure of $33,000. This includes the purchase price of the building and the cost of certain alterations to it. It also provides for the purchase of a new billing machine and for the financing of improvements to the electrical distribution system. Thomas J. Moffat, chairman of the utility, announced that the entire program would be financed from available funds.

Cable to Link French, U.K. Electrical Systems

By 1961 the electrical systems of Britain and France are to be linked by submarine cables between Dungeness and Le Portel, Boulogne at a total estimated cost of $11 million. This cost will be borne equally by Britain and France, with work scheduled to start early in 1958, and be completed a year later.

Because peak loads occur at slightly different times in each country, it is hoped the total savings will be approximately $840,000 annually.

Tecumseh Rate Drop Means Lower Surplus

Revision of Tecumseh's rate structure as of December 1, 1957, by the Hydro division of the Tecumseh P.U.C. means that the surplus for 1958 will be less than half that of the last year. The revised rates will reduce revenues as follows: domestic, 7.9 per cent; commercial, 18.6, and power, 12.6 per cent. The 1957 surplus was $19,000, whereas it has been estimated it will be approximately $9,200 in 1958.



MIMICO CELEBRATES

THESE smiling officials of the Mimico P.U.C. are shown during the ceremonies held recently to mark the opening of the first "bungalow-type" substation in the community's rapidly-growing distribution system. From the left are: Commissioner James Edmond, Mayor W. A. Edwards and Chairman Amos H. Waites. W. Ross Strike, Q.C., Hydro's First Vice-Chairman, was guest speaker at a banquet following these ceremonies. The handsome new brick structure incorporates an L-shaped wing wall to divert transformer noise away from nearby residences.

Durward Heads Water Group

Galt P.U.C. Manager David N. Durward has been named Chairman of the South Central Ontario Water Works group, which has been formed to increase and improve operations and maintenance of water systems in that part of the province, with support from the Ontario Water Resources Commission and the Canadian Section of the American Waterworks Association.

R. L. Barlow, Manager, Oakville P.U.C., has also been appointed Secretary-Treasurer, while the directors include Superintendent G. E. Maxwell, Simcoe P.U.C. Speakers at the one-day inaugural meeting of the group in Burlington were Ontario Water Resources Commission General Manager Dr. A. E. Berry, and G. H. Strickland, Water Superintendent, Windsor Utilities Commission.

Kitchener Mourns Commissioner

Kitchener Commissioner James W. Washburn died recently in the Kitchener-Waterloo Hospital in his 62nd year after a brief illness.

Mayor of Kitchener in 1948-49, he previously served as alderman for eight successive years, and had lived in Kitchener for 52 years. Chairman of the commission in 1955-6, Mr. Washburn also completed part of the 1954 term of Harvey Graber, who died in office. A veteran of the First World War, Mr. Washburn served overseas with the 118th Battalion, and during the Second World War was a lieutenant with the Scots Fusiliers of Canada (Reserve). Surviving are his wife, his mother, a daughter, two sons, a brother and four grandchildren.

Former Mayor Fred Dreger has been named to fill the unexpired term of the late Mr. Washburn.

Woodbridge Customers Have Good Payment Record

Woodbridge R.O.A. Manager L. D. Pengelly, who supervises collections for the Woodbridge Hydro-Electric Commission, announced at the end of December that the utility's books were singularly free of uncollectable items. A small flaw in the record was an old $2.73 debt due from a person whose present address is unknown.

Return Deposits For Prompt Payment

Sudbury Hydro-Electric Commission recently expressed appreciation to "prompt-payment" customers by returning deposit cheques. A covering letter from the commission pointed out: "It is the policy of the commission to refund cash deposits after a three-year prompt payment record is established, and it is our pleasure to enclose our cheque returning your cash deposit, with interest."

ANNOUNCE NUCLEAR AND HYDRAULIC PROJECTS

IMPORTANT developments relating to Ontario's future power supplies have figured prominently in recent news reports.

Of particular significance was the announcement on February 3 that construction of the 20,000-kilowatt Nuclear Power Demonstration (NPD) plant on the Ottawa River would be resumed. Work on this "pilot" nuclear-electric station was suspended last April to incorporate design improvements. It is anticipated that it will be ready for service in 1961.

Government approval has also been given to the recommendation of Atomic Energy of Canada Limited concerning the inauguration of a comprehensive development program for a 200,000-kw. nuclear power plant. While A.E.C.L. will be responsible for this project, Ontario Hydro will play a leading part in it and present plans envisage a broad participation by other Canadian utilities and industries.

Ontario Hydro will assign as many as 15 engineers to the Nuclear Power Plant Division, which will be established in Toronto by A.E.C.L. to direct and co-ordinate these two projects. The Commission will also provide the necessary accommodation at the A. W. Manby Service Centre near Islington for the new division. At the request of Atomic Energy of Canada Limited, Ontario Hydro has also agreed to make available the services of Harold A. Smith, Hydro's Assistant General Manager — Engineering, as Manager of the new division. Mr. Smith, who will also continue to carry out his present duties with the Commission, was on loan to Atomic Energy of Canada Limited for four years, during which time he was in charge of the Nuclear Power Branch. This Branch prepared the outlined specifications for the NPD reactor and the preliminary design study for the 200,000-kilowatt nuclear power plant.



HAROLD A. SMITH

Expressing the Commission's gratification and its intention to participate fully in this new, co-ordinated program, Chairman James S. Duncan said it was Ontario Hydro's hope that the first major nuclear plant in the Hydro system would be available for base load operation in 1965 or 1966, "on a basis, which will be within competitive range of coal-fired stations."

While directing its attention to the potentialities of nuclear energy, the Commission is also giving equal consideration to the possibilities of expanding its hydro-electric resources. Earlier this month Ontario's Prime Minister, Hon. Leslie M. Frost, and Mr. Duncan announced two initial steps in a long-range plan to develop additional hydraulic sites in north-eastern Ontario. Under this plan, Ontario Hydro will initiate immediate construction of Red Rock Generating Station on the Mississagi River, about 12 miles northeast of Thessalon, as well as Otter Rapids G.S. on the Abitibi River, some 60 miles north-east of Kapuskasing.

Capacity of the Red Rock plant, which is tentatively scheduled for initial operation late in 1960, is expected to be about 31,000 kw. Initial power from the Otter Rapids development, which is expected to have a capacity of 131,000 kw., is anticipated in 1961. Combined cost of the two developments, both of which are located within the Northern Ontario Properties — a system held and operated in trust by the Commission for the Province of Ontario — is estimated at $50 million.

Heads Distribution Construction Department

E. F. Burbank, B.Sc., has been appointed Engineer, Distribution Construction, the Toronto Hydro-Electric System. He succeeds Gerald L. Lillie, who has retired after more than 44 years' service with Toronto Hydro.



E. F. BURBANK

Mr. Burbank, who was born in 1903, in Toronto, was educated in Toronto schools, and received his degree in electrical engineering from Queen's University in 1929.

Previous to entering University, Mr. Burbank had worked for Toronto Hydro in 1923 in a clerical capacity. Upon his graduation, he was engaged in engineering work in the Distribution Department until 1949, when he became Street Lighting Engineer. After two years in this position, he was appointed Field Engineer for the Distribution Construction Department, acting in this capacity until his present appointment.

At the outbreak of World War II, Mr. Burbank enlisted in the armed forces and served with distinction in the war theatres of England, Italy, Holland, and Germany. He is interested in golf, fishing, and gardening. A son is following in his footsteps, and is in his second year of Engineering Physics at Queen's on a scholarship.

Trenton P.U.C. Manager Accepts Ottawa Post

Clare B. Campbell resigned in January as Manager-Secretary of Trenton P.U.C. to accept a position on the engineering staff of the Ottawa Hydro-Electric Commission. Succeeding retiring E. R. Smithson in the Trenton post four years ago, Mr. Campbell is no stranger to Ottawa, having served there for two years with the Royal Canadian Navy during the war.

East York Honors 25-year Staff

East York Hydro-Electric Commission recently held its third annual 25-year Club banquet in honor of 14 employees with service of 25 years or more, including one lady staff member, Mrs. Helen Beales.

Commissioner Norman Maughan presented ex-Reeve Harry Simpson with a travelling bag in appreciation of his seven-year service. Chairman Charles Ellerbeck made a presentation to William Barker, who retired after 31 years' service with the commission, and also presented a 25-year club button to Jack Corbet, who became a member this year.

Listowel Staff Given Pay Increase

A welcome Christmas gift for Listowel P.U.C. employees was the commission's recent intimation that all members of the staff would receive a pay increase of $100 a year, commencing in 1958.

St. Catharines Honors Long-Service Employees

Six employees of St. Catharines P.U.C., with combined service of 120 years, were honored at the commission's annual banquet recently. Presentations of service pins were made by Chairman W. B. Elliott and Commissioners R. D. Hunter, George Laughlin and F. R. Cavers to: J. H. Lambert, 20 years; Norman Kent, 20; Bert Cooke, 35; Vernon May, 20 years; Walter McMaster, 15 years and Bruce Eckhardt, 10 years.

McHENRY NAMED 2nd VICE-PRESIDENT

The 16,000-member Association of Professional Enginners of Ontario has elected Charles Terry Carson of Windsor, Ont., as its 1958 president. He succeeds John H. Fox of Toronto as head of the largest professional organization of its kind in Canada. The A.P.E.O. is the licensing body for the engineering profession in Ontario.



G. M. McHENRY

In business life, Mr. Carson is Vice-President and Production Manager of Hiram Walker & Sons Ltd., Walkerville, Ont. He is also Chairman of the Committee on Engineering Education at Assumption University, Windsor. The university's branch, Essex College, offers degree courses in four branches of engineering – chemical, electrical, civil, and mechanical.

Carson, a member of the association since 1946, has served on the executive council for five years, and last year was the association's 1st Vice-President. He is a graduate of the University of Toronto, and is also a Fellow of the Chemical Institute of Canada.

Elected 1st Vice-President for 1958 was Andrew F. McQueen, Niagara Falls, Ont., President of H. G. Acres & Co. Ltd. The 2nd Vice-President is Gordon M. McHenry, London, Consumer Service Engineer, Ontario Hydro, Western Region.

Robert L. Hicks, Toronto, engineer, Distribution Planning and Design Dept., Toronto Hydro-Electric System; and John W. Holmes, Peterborough, design engineer, Canadian General Electric Co., were elected councillors in the electrical branch. J. Herbert Smith, Toronto, President of Canadian General Electric Co. Ltd., was also appointed to this branch by the Lieutenant-Governor-in-Council.



SELL "KAM" STATION

Fort William Hydro-Electric Commission recently announced that it had sold its Kam transformer station to a local cleaning firm. Associated with power distribution in the Lakehead city for almost a half-century, the old station began operation in 1906 when power was first supplied to the northern community from the Kakabeka Generating Station on the Kaministiquia River. The venerable structure will be renovated and used as a local laundry and dry-cleaning establishment.

ADVANTAGEOUS POSITION

(Continued from page 1)

plants in the heavily-industrialized Toronto-Hamilton area, as well as approval of another vital thermal-electric installation in the Fort William-Port Arthur district.

Climaxing even these important developments is the disclosure in this issue (see page 26) that Ontario Hydro will share the responsibility with Atomic Energy of Canada Limited in resuming construction of the Nuclear Power Demonstration (NPD) plant. The Commission will also participate in a comprehensive program to provide designs for a 200,000-kw. nuclear-electric station. We are confident that there will be unanimous endorsement of the Commission's connection with this nuclear program, as well as heightened confidence that Hydro, within the next decade, will be in an advantageous position to adapt this new form of energy to meet the continuing challenges of a prosperous province. ■

GEORGE W. RAYNER



GEORGE W. RAYNER

PROMINENT in Canadian engineering and construction circles for virtually a half-century, George W. Rayner died recently in Toronto in his 74th year. A native of Suffolk, England, he came to Canada when only seven years of age, graduating in civil and mining engineering in 1905. Associated with Northern Ontario's early mining enterprises for many years, he formed his own construction firm in 1925, and left many lasting monuments in the transportation, mining and power development fields. A rugged individualist, the deceased was honored by the Commission in 1951 by the renaming of a new hydro-electric generating station on the Mississagi River in his honor. Rayner Construction Company carried out the construction of this plant – now known as the George W. Rayner Generating Station – under the supervision of the Commission. In subsequent years, this firm has been identified with vital phases of such Ontario Hydro developments as the Sir Adam Beck-Niagara Generating Station No. 2 and the St. Lawrence Power Project.

SEAFORTH "DRESSES UP"

(Continued from page 11)

Some 800 customers, out of a total population approximating 2,100 men, women and children, reveals that Seaforth's citizens are truly "electrically-minded." This happy condition is undoubtedly fostered by members of the local commission comprising: Chairman Frank A. Kling, the Mayor, D. F. Christie, Reeve Norman Scoins, Commissioner D'Orlean Sills, Mrs. M. Hiusser, Secretary, and Manager R. B. Holmes. ■

POWER PROSPECTS

(Continued from page 7)

to 50 mills. The most recent estimate for the cost of energy from the Shippingport reactor is 63 mills per kwhr., largely due to an increase in the cost estimate from 47.8 million to 70 million dollars.

United Kingdom Predictions

Sir Christopher Hinton, formerly Managing Director of the U.K. Atomic Energy Commission Industrial Group, is the recognized U.K. authority in the nuclear power field.

Using British accounting practices he predicted in March last year that the cost of power in England from gas-graphite nuclear plants will be as follows: 1960 – 7.56 mills per kwhr.; 1970 – 5.38 mills; 1980 – 4.35 mills, and 1990 – 3.67 mills. In arriving at this prediction he made allowance for the fact that it will not be possible to supply only base load from the nuclear plants and for 1970, 1980 and 1990 used load factors of 70, 65, and 60 per cent respectively. He also progressively reduced the credit for plutonium production.

One difficulty encountered in considering U.K. cost estimates is that of translating them into equivalent Canadian costs due to differences in financing methods and labor costs. However, it appears that if no credit for plutonium was made, and Sir Christopher's cost trends were followed, Ontario Hydro costs for the same type of plants, but with operation at 80 per cent load factor might be: 1960 – 10.75 mills per kwhr.; 1970 – 7.26 mills; 1980 – 5.53 mills, and 1990 – 4.27 mills.

Canadian Predictions

Canadian research and development centres on the heavy water moderated and cooled reactor, and a forecast has been made of the cost of energy from a nuclear plant employing this type of reactor. Using 1957 dollars the estimate applicable to Ontario Hydro on the assumption of 7,000 hours' use per year at full load *exclusive of development cost* is as follows: 1965 – 5.94 mills per kwhr.; 1975 – 4.01 mills; 1985 – 3.06 mills, and 1995 – 2.36 mills.

It is very important to keep in mind that these figures are exclusive of development costs, but even with this cost excluded it is evident that true economic competition cannot be expected in Ontario before 1968 even for base load plants. Therefore, the time is not yet ripe to embark on an extensive program of nuclear development.

General Observations

From the data available it is quite evident that the high capital costs associated with nuclear plants require high load factor operation if kilowatt-hour production costs are to be minimized. For this reason alone, nuclear power is not expected to entirely supersede conventional plants unless capital costs can be radically reduced. In addition, there are operating difficulties which, unless overcome, would preclude complete displacement of conventional plants.

Hydro's Long Range Plan

At the present time it is impossible to prepare firm cost estimates for full-scale nuclear power plants, but it is certain that any plant built today could not possibly compete with a conventional steam plant. Therefore, no matter how attractive the future potential of nuclear plants might be, and in spite of the fact that the fuel would be indigenous to Ontario, the cost differential is so great that we could not at this time pass on to our customers the burden of paying for significant amounts of power generated in this way. Operational reliability has not been proved, and this fact also is a good reason why large scale installations should not be undertaken immediately.

Ontario Hydro's plan is to develop the remaining economic hydraulic sites in conjunction with conventional steam plants until the development of nuclear power has proceeded to the point where it is demonstrated to be reliable and approaches competition

with conventional plants. In the meantime, the heavy water reactor appears to offer at least as good, if not better prospects than other types for early use by Ontario Hydro.

When this time arrives we will commence to use nuclear power to supply base load, and will co-ordinate the amounts so produced with hydraulic and conventional thermal generation. In this way power costs will be minimized consistent with Ontario Hydro's obligation to the people of the province.

We are optimistic that it will not be necessary to wait until cost superiority is fully demonstrated before a full-scale nuclear plant is developed under the Canadian program. If the technological development is favorable it would be to Canada's long-term advantage to start earlier and suffer some loss initially in order to make more rapid gains later. Thus, we are hopeful that the Canadian effort will result in a full-scale plant being in operation perhaps by 1966, and that relatively rapid expansion will take place thereafter so that by 1980 it is possible that one third of Ontario Hydro's total requirements will come from nuclear power. ■

BRINK OF ETERNITY

(Continued from page 17)

Almost a day and a night and part of another day, Lafberg and Harris had been perched on the brink of eternity. They were completely exhausted. But Lafberg turned to his companion.

"You go ahead, George," he said. "I'll stay behind and man the ropes, because I know how to handle them better than you."

After the harrowing ordeal, the actual rescue seemed almost prosaic. The men were pulled by strong and willing arms to the roof of the powerhouse where doctors and nurses waited.

Thus Niagara was cheated at its very crest. As is usual in such cases, many legends have grown up around the event, including a persistent old yarn that the hair of the near-victims turned white overnight from their harrowing experiences.

The answer to this lies in the same story in the *Evening Review*, where it was recorded:

"Dr. Musgrove examined them (Lafberg and Harris), and declared them in remarkably fine shape considering what they had gone through."

There have been other instances of men facing the same grim fate. There was the tragic time a man named Avery was caught in a punt above the Falls for 48 hours, before the boat broke up and he was rocketed to his death. A companion panicked before the boat went over the Falls, jumped, and was drowned. On May 20, 1923, a privately-owned cutter, the "Sunbeam," stuck on the rocks of the rapids, not far from the remains of the scow. Its crew of two was soon rescued, and the cutter gradually disintegrated, disappearing finally in 1941.

Yet, of all the dramatic incidents that have flashed across Niagara's watery pages, none has left a deeper public impression than the story of the steel scow and the hours of horror for two men . . . for the evidence is still there. It did not, as predicted, go over the Falls in 30 minutes. It did not, as one newspaperman prophesied, fling itself over the Horseshoe when "some strong weather" came.

Today, nearly 40 years later, the scow broods sullenly over the Falls, pointed out by countless tourists, who guess at its origin, and consider it one of the "sights" of Niagara. Trees are growing through the steel hull, while other sections have rusted away.

But it is still there, a monument to two men's superhuman endurance, and one man's sublime courage.

Only the gods of Niagara know how much longer it will be permitted to remain. ■



ASHTON HONORED BY COMMISSION

A LONG-TIME member of the Port Arthur Public Utilities Commission was presented with an engraved silver tray by his associates on the utility prior to his retirement.

Sam Ashton, former chairman of the P.U.C., served 19 years with the commission and retired at the end of 1957 to take a seat on city council as an alderman.

Suitably inscribed the tray was presented by R. B. Chandler, Chairman, who paid high tribute to the calibre of Mr. Ashton's service. In the photograph above, left to right, are: E. A. Vigars, Mr. Ashton, Mr. Chandler, with Commissioners T. J. McAuliffe and J. M. Allen

How little does electricity really cost?

Most things you buy today have gone up in price — an average of 80% between 1940 and 1956 according to the Consumer Price Index.

But in Ontario during these same years, the average price of ELECTRICITY used in the home and on the farm has actually gone down 4%.

The average cost of a day's cooking for a family of four is only 5.3 cents.

Electricity is one of the most important things in your daily life. Your home is safer . . . easier to keep clean . . . brighter . . . more comfortable than ever before.

Household tasks, and farm tasks too, are done more quickly, more easily, more economically and the world of entertainment is yours at the flick of a switch . . . all for only a few cents a day.

Live Better Electrically. . . the safe, clean, modern way.

ELECTRICITY DOES SO MUCH . . .

COSTS SO LITTLE

ONTARIO HYDRO


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ONTARIO HYDRO *News*

MARCH, 1958

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ONTARIO HYDRO NEWS

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COVER PHOTOGRAPHS

Along the lonely stretches of the English River, some 40 miles northwest of Kenora, Ontario Hydro engineering-construction forces are busily developing the Caribou Falls site. Progress at the 67,500-kilowatt project, which is scheduled for completion later this year, is clearly illustrated in our front cover photograph this month. The Commission's Lower Sturgeon Generating Station on the Mattagami River, about 30 miles north of Timmins, with its snow-covered spillways, provides a picturesque theme for our back cover.

CANADA'S TRADING POSITION

In recent months the attention of many thoughtful Canadians has been focused on the nation's economic "climate" and the question of her trading relationships with the United Kingdom and the United States. Considerable interest has been evinced, for example, in the activities and objectives of the Canadian Trade Mission, which visited Great Britain late last year.

In this issue, Ontario Hydro Chairman James S. Duncan, deputy leader of the Mission, presents a frank appraisal of Canada's trading "habits," and also certain trends, which, if allowed to continue, could adversely affect her economic balance.

It is, we are confident, perfectly obvious by now that the trade mission, in seeking to develop Anglo-Canadian commerce, was not prompted by sentiment, nor was it attempting to give preference to British manufacturers at the expense of Canadian industry. Mr. Duncan, Chairman of the Dollar Sterling Trade Council which he organized in 1949, sets the record straight by pointing out that the purpose of the mission was to stimulate British exporters "to obtain a larger share of the goods we import from other countries."

The reasons for such a course, we feel, are quite apparent. In 1956, for example, the United States supplied 73 per cent of Canadian imports as well as 69 per cent of all the foreign capital for direct investment, while providing a market for only 59 per cent of Canadian exports.

On the other hand, because of a serious dollar shortage, induced, in part, by our insufficient volume of imports from her, the United Kingdom has, necessarily, been forced to curtail imports of Canadian goods. There have been many instances in which this reduced demand for our products in Great Britain has had serious repercussions, particularly in western Canada.

These conditions, of course, only serve to emphasize the soundness of the conviction that Canada cannot reasonably expect to maintain her role as a major exporting nation while seeking to curtail imports. There are ample grounds for confidence that a movement toward increased British imports can be accomplished without unduly harming Canadian producers. At the present time, Canada's purchases from the United States are approximately nine times greater than those from Great Britain, thus allowing room for a substantial increase in trade with the United Kingdom without any noticeable effect on Canada's industrial activity. There appears to be general recognition, too, on the part of

(Continued on page 28)



TWO BRIDGES – Clearly outlined against a bright, cloudless sky, Niagara's international Rainbow Bridge arches over the natural ice bridge that formed recently in the gorge below the twin cataracts, joining Canada and its friendly neighbor, the United States, in a wintry handshake.

CANADA'S TRADE PATTERN

CAN IT CHANGE?

Members of historic delegation are confident that this nation can improve its economic balance by stepping up imports from Britain

"It is obvious that it is in our country's best interests to try to bring our trade into better balance by buying more of our total imports from the United Kingdom, a policy which would ensure for us a larger export market to our traditional overseas customer. . ."

"The policies which the Dollar Sterling Trade Council are pursuing, and which have been greatly stimulated by our splendidly successful trade mission to the United Kingdom, are not only clearly in the best interests of Canada, but also in the best interests of Great Britain and of the United States. . . . . ."

"During our recent visit to Britain we gave our friends over there a great deal of advice concerning the steps which they should take to obtain a larger share of our imports. There are many things which we can do to encourage our fellow-Canadians to co-operate in this task. We have no tools to work with other than those of persuasion and voluntary action, but these are powerful tools if well handled, and voluntary action on our part is far better than the alternative of import controls or higher tariffs."

The quotations on this page represent some of the highlights of a recent address by Ontario Hydro Chairman James S. Duncan to members of the Empire Club of Canada and the Canadian Club of Toronto when he discussed the objectives of the recent Canadian Trade Mission. Mr. Duncan, as deputy leader of the Mission, and as Chairman of the Dollar Sterling Trade Council, had a leading role in arrangements for the visit to the United Kingdom under the sponsorship of the Canadian and British Governments. Comprising a group of 58 Canadian businessmen, including Henry J. Sissons, Ontario Hydro's Assistant General Manager – Services, the Mission arrived in Great Britain on November 23, 1957. In the course of the next four weeks, the members of the historic trade delegation visited many sections of England, Scotland, Wales and Ireland. During this time representatives of the Mission visited over 100 different factories; held almost daily press, radio and television conferences, while attending daily luncheons and dinners to meet between 125 and 750 influential Britons on each occasion. The spontaneous upsurge of public interest and approval, which greeted the Mission, was expressed by His Royal Highness, Prince Philip, in formally bidding farewell to the Canadians before their departure: "The arrival of the Canadian Trade Mission here is the best thing that has happened to this country in 1957 and for some time before that."

In this article, which is based on his address at the joint luncheon of the Empire and the Toronto Canadian Clubs early in February this year, Mr. Duncan records his impressions of the Canadian Trade Mission and the vital influence it could exert on Canada's future economy.– Editor's Note.

The fact that Canada on her own initiative had sent over this mission to explore the possibility of stimulating Anglo-Canadian trade gave rise to sentiments of appreciation and enthusiasm which grew daily in force and vigor throughout our sojourn and had not reached their peak at the time of our departure.

The requests for individual interviews with members of our trade mission, which were received from large and small business firms seeking information about Canada, and which in the London area alone amounted to 1,400, were still growing in number when we left Britain. I am happy to say that the press, television and radio coverage during the last two days of our visit was greater than at any time during our stay.

The Canadian Trade Mission had the opportunity not only of visiting a very large number of industries, both large and small, in many areas throughout the United Kingdom, but also of meeting the owners or representatives of hundreds of others and of discussing their problems with them.

Favorable Impression

We have been most favorably impressed with what we have seen, and broadly speaking, we have returned home with the feeling that British industry is showing leadership of a high order in scientific research, new technologies, and in the efficiency of its manufacturing practices.

We have, I hope, laid to rest that perennial canard, so often repeated in North America, that British labor was not productive. From what we have seen, if the British worker is given similar tools to work with, his productivity is at least equal to that of the workers of Canada or the United States. I may also add that he works longer hours, the standard work week there being 44 hours as against 40 hours on this continent.

The British manufacturer has now recovered from the gruelling experiences of war and the restrictions and shortages of capital and raw materials which followed in its wake. That we are witnessing today an industrial resurgence in Britain is beyond doubt. Between 1953 and 1956, fixed investment in the manufacturing industries increased by 37 per cent, and it is interesting to note that although Britain's exports are currently seven times greater in value than before the war and double the pre-war volume, the whole pattern of her exports has been changing. The old standbys such as coal are replaced by a range of new industrial products to meet the requirements and advanced technologies of the more scientific world in which we live today.

The British manufacturer is conscious of Britain's leadership in nuclear science, in certain types of aircraft and aero engines and other highly technical products. He is assured of her ability to produce a wide range of goods equal in design and quality to, and competitive in price with the industries of Continental Europe and of America,



ONTARIO HYDRO CHAIRMAN JAMES S. DUNCAN

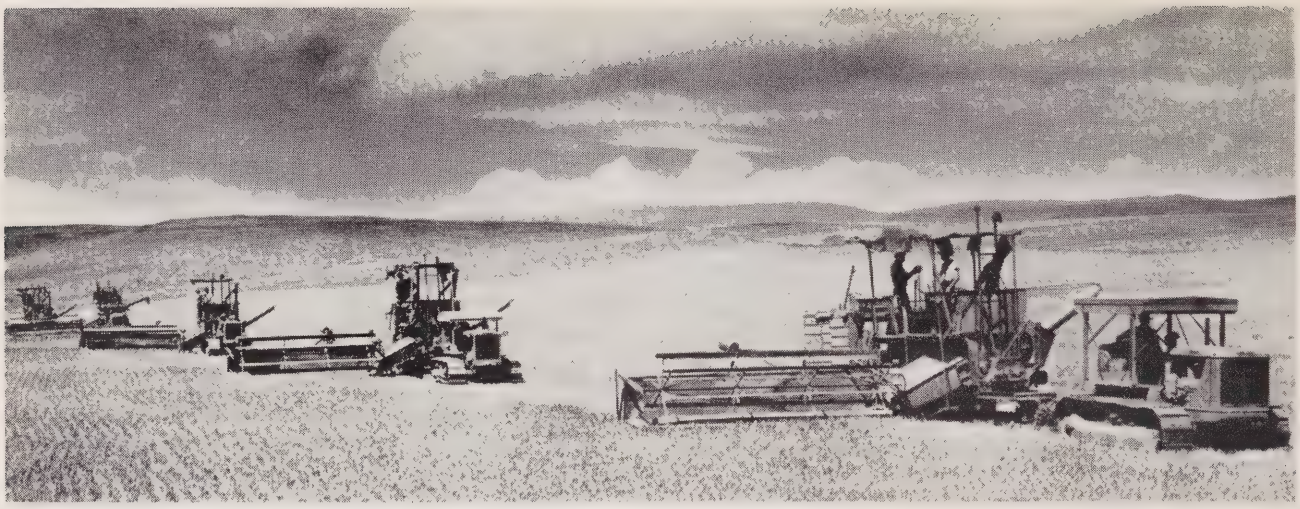


HENRY J. SISSONS
Hydro's Assistant General Manager — Services

and he is looking forward to the challenge of the future, confident in his ability to adjust himself to its changing patterns.

The Canadian trade delegation has satisfied itself that the United Kingdom is producing a large range of manufactured products suitable for our market, and which we are presently importing from other sources

(Continued on page 4



FACING a trade imbalance with Canada, Britain has been forced to curtail imports from this country of such commodities as wheat and other grains due to a shortage of dollars.

We are confident that if we both work at the task, the United Kingdom can supply us with a much larger proportion of the products which we import.

"Why should we, the purchasers, go out of our way to help the United Kingdom sell us their goods?"

The answer has many facets, but one stands out among them all. We are endeavouring to assist the United Kingdom to obtain a larger share of our total imports because it is clearly in Canada's best interests that we should do so. Sentiment plays no part in this policy. It is simply a matter of enlightened self-interest.

I may note in passing that it was because I was convinced of this that I organized the Dollar Sterling Trade Council in 1949 with a view to implementing this closer relationship. It was these same factors which were the motivating force behind the Trade Mission, the most successful of its kind ever undertaken by Canada or welcomed by Great Britain.

In 1956 our imports from the United States amounted to $4,162,000,000 whereas we exported to that country only $2,879,000,000, leaving us with an adverse trade balance of staggering proportions. One of the troublesome factors about our imbalance with the United States is not only its size but the fact that it has been growing with alarming rapidity.

In 1950, when controls were removed, our imbalance was only $80 million. In 1955 it had jumped to $840 million, and in 1956 it had reached a figure of $1,283,000,000. This trade deficit is 45 per cent greater than the United Kingdom's combined deficit with Canada and the United States.

I venture to suggest that such a situation cannot be allowed to continue.

While this is going on, the reverse situation prevails as regards our trading relationship with the United Kingdom, our second largest customer, upon whom many segments of our country depend, in particular the economy of the western provinces. Our purchases from Britain are so much less than our shipments to her that she is facing a trade imbalance with us. This results in her being obliged to curtail her purchases for the simple reason that she is not earning sufficient dollars to enable her to pay for more.

It is obvious, therefore, that it is in our country's best interests to try to bring our trade into better balance by buying more of our total imports from the United Kingdom, a policy which would ensure for us a larger export market to our traditional overseas customer.

There are those who are apprehensive lest, by advocating these measures, we are pursuing an anti-American policy, which is not only unneighbourly but leaves us vulnerable to retaliation. I have discussed this matter with hundreds of Americans since the Dollar Sterling Trade Council first advocated buying a larger proportion of our imports from the United Kingdom, and I never met anyone who, with the facts before him, did not agree that what we were proposing was not only in our interest, but also in the interests of the United States.

The fact is that since we are, by long odds, the United States' largest customer, it is essential to them that we should remain economically sound. They recognize that we cannot do so if we continue to buy goods from the United States vastly in excess of our sales to them and if, at the same time, we allow exports to the United Kingdom to decline because of its adverse trade balance with us. Furthermore, the United States recognizes that if we were successful in switching imports to the United Kingdom,

BASIC EXPORTING INDUSTRIES in Canada such as forest products have a large stake in the United Kingdom's market where buyers can only obtain dollars by Canadian purchases of manufactured goods.





DURING the visit to Great Britain, members of the Canadian Trade Mission visited some 100 or more plants of various sizes. Four key figures in the Anglo-Canadian project, left to right: Geoffrey Rootes, British industrialist; Hon. Gordon Churchill, Canada's Minister of Trade and Commerce; Sir William Rootes, Chairman of Britain's Dollar Exports Council, and Mr. Duncan, deputy leader of the Canadian trade delegation, are shown during a visit to one of the factories.

even to the point of bringing her trade into balance with ours, we would still be purchasing far more from our southern neighbour than she purchases from us, and we would still be by far her largest customer.

Let me stress here that this imbalance of trade between the U.S.A. and ourselves and the massive inflow of American capital, which has given rise to some anxiety in certain quarters, is not the result of any national policy on the part of the American Government. Other than in certain matters of tariffs and quotas, which, at times, we deplore, the American Government carries no responsibility for what is taking place.

It cannot be emphasized too strongly that these situations are preponderantly the result of the individual choice of the citizens of the U.S.A. and Canada operating in a free economy, and where corrections are required they can only be satifactorily applied by the voluntary action of the individuals of both nations.

There is another segment of our population, which expresses alarm, lest a policy of stimulating imports from the United Kingdom be hurtful to our own producers and manufacturers. Speaking broadly, such fears are largely groundless. The objectives of the Dollar Sterling Trade Council and of the Trade Mission are not to encourage Britain to export goods to us, which would be competitive with our own manufacturers, but, on the contrary, to stimulate their exporters to obtain a larger share of the goods which we import from other countries.

When one considers that our importations from the United States alone amounted to approximately nine times those from the United Kingdom, it is obvious that there is plenty of room in which to manoeuvre without hurting our own producers. The motto of the Dollar Sterling Trade Council is "Buy Canadian if available, if not buy British, providing their goods are competitive in price, in quality and in deliveries."

Dependent on Exports

To those few who claim, and perhaps with some justification, that they are actually being hurt by British imports the answer is that if it were not British imports which are hurting them, it would probably be imports from some other country. On the other hand, our prosperity, our living standards, our very Canadian way of life are dependent upon the volume of our exports, to a degree which is only comparable to the position of Great Britain herself. It would be quite unrealistic on our part to expect to continue as a great exporting nation and at the same time radically restrict imports. It could also be clearly demonstrated that the overall benefits to our economy of a better-balanced trade and a larger and more assured outlet for our exports far outweigh any individual disadvantage which may show up here and there.

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WHITEDOG "ON

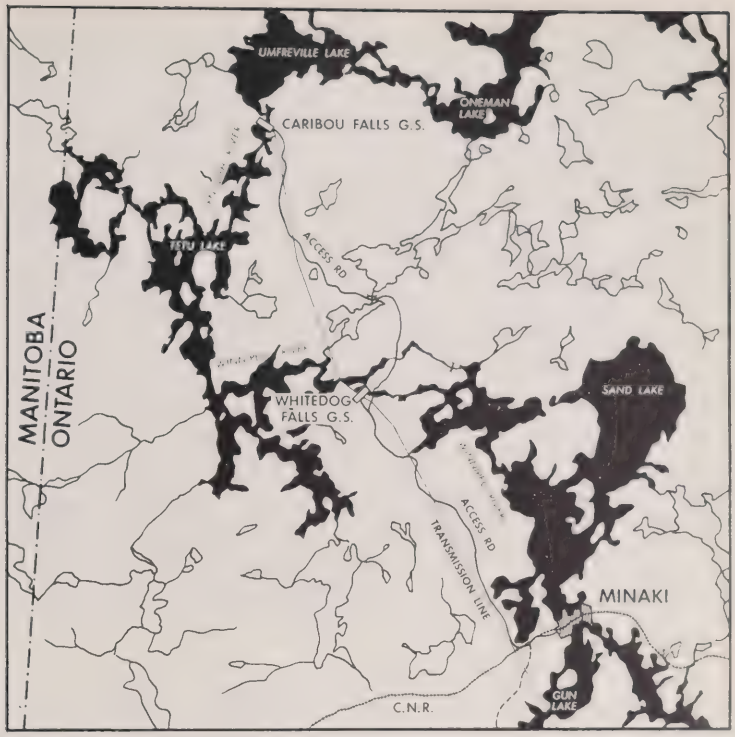
New Winnipeg River plant — 16th power source inaugurated since 1945 — commences feeding power into Hydro's Northwestern Division

AERIAL VIEW of Hydro's new 54,000-kilowatt Whitedog Falls Generating Station looking upstream to the headpond area. A section of the access road, which links Whitedog with the Caribou Falls project on the English River, is visible on the left.



LOAD"





A VAST SYSTEM of lakes and streams in northwestern Ontario feeds the Winnipeg and English Rivers, sites of Hydro's Whitedog and Caribou developments. The map indicates the location of these projects, the necessary access roads, as well as the associated transmission lines for these developments.

February 17 — At 15.15 Whitedog G.S. No. 1 unit was placed on load, under test, for the first time.

With that brief and modest announcement in a recent issue of Ontario Hydro's Operations Division Daily Summary, the historic and tumbling Winnipeg River began a 20th century role in the growth and development of northwestern Ontario.

Once the main artery of travel for the adventurous explorers and fur traders of the 18th century, the Winnipeg is today the site of Hydro's Whitedog Falls Generating Station. Scheduled for completion within the next few months, this new 54,000-kilowatt hydro-electric plant will feed its full output into the growing electrical grid of the Commission's Northwestern Division.

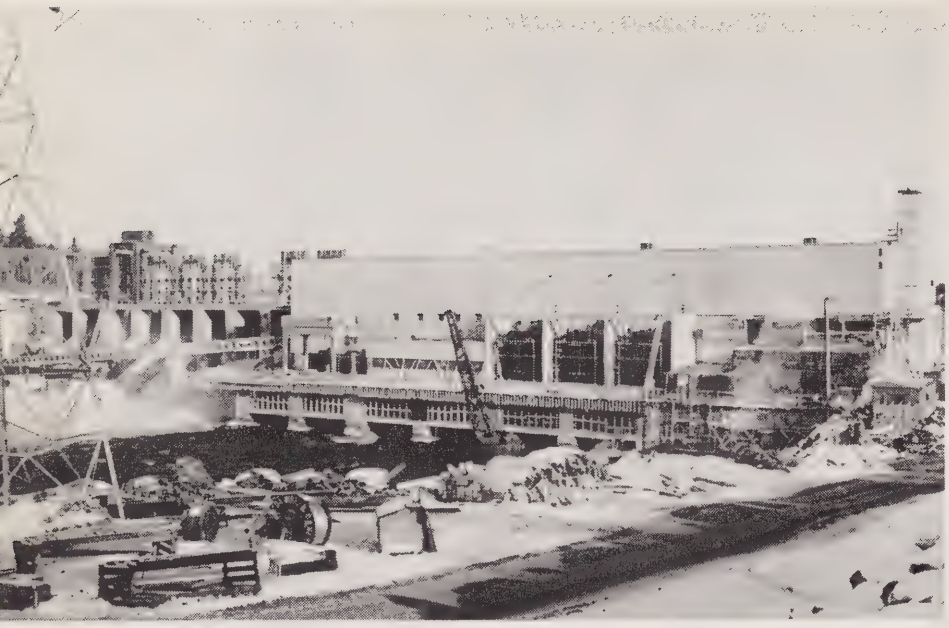
While this will be an important addition to the power resources of that burgeoning section of Ontario, it is just one of seven Commission projects being pushed forward in northern Ontario at present. On a province-wide basis, Whitedog Falls represents the 16th new power source inaugurated by Hydro since 1945.

Draining an area of some 27,950 square miles at the site, and dropping over rapids, falls and cascades for a distance of 35 miles below Lake of the Woods, it seems natural that the Winnipeg should become a source of power for the province.

Work Began in 1955

Barricaded behind a formidable expanse of forest, water and muskeg, the Whitedog Falls construction site, 30 miles northwest of Kenora, was established in the autumn of 1955. Then followed the exacting job of hewing out a 16-mile access road to link the project with a new railway

(Continued on page 9)



WHITEDOG FALLS plant will be remotely controlled from Kenora Switching Station. A 40-ton gantry crane has been installed to operate seven of the sluiceway gates (left) while the two gates, adjacent to the powerhouse, will be controlled automatically.

LOOKING DOWNSTREAM at the Whitedog Falls development. On the left is a section of the extensive project colony.





INSIDE the powerhouse, installation of the station's generating units is proceeding rapidly. The 54,000-kilowatt plant is scheduled for completion early this year.

siding at Pistol Lake (on the main transcontinental C.N.R. line) and the nearby Village of Minaki.

Since that time the Hydro contingent of some 600 men and women, comprising engineers, truck drivers, carpenters and a dozen or more other classifications, has created a full-fledged modern community, and transformed plans into a dam and powerhouse to develop a 50-foot head.

1,200-Foot Dam

All this intense construction activity has produced impressive results. Today a 1,200-foot long concrete dam, incorporating gravity sections, a sluiceway section, consisting of nine sluices, and the three-unit powerhouse spans the south channel of the river. From bedrock to the headworks the structure rises to a maximum height of 110 feet.

Into this massive structure has gone some half-million bags of cement and 125,000 tons of aggregate for the 85,000 cubic yards of concrete required for the project.

Auxiliary structures include a rock-and-earth dam to block the north channel of the Winnipeg, while smaller dams have been constructed to build up low spots around the headpond area.

Increased Operating Head

No effort has been spared to improve flow conditions in the project area. Three miles upstream from the Whitedog Falls powerhouse, a 30,000-cubic yard excavation has been carried out to reduce headwater losses. To increase the operating head at Whitedog and at the associated Caribou Falls (English River) development, additional rock will be excavated at Boundary Falls below the confluence of the English and Winnipeg Rivers, thereby lowering the tailwater level at both sites.

In addition to these phases of construction was the establishment of the Whitedog Falls colony or campsite. This has included the building of 30 houses and the provision of some 60 trailers for married men and their families. Accommodation has also been provided for some 500 employees in dormitories and staff houses.

The cafeteria, capable of seating 360 persons at a single sitting, is of course, of prime importance among the colony buildings, which also include a recreation hall, with facilities for such leisure activities as bowling, billiards and badminton. Regular dances and movies are also held in this attractive community centre. Other modern amenities of the campsite are a 10-bed hospital, equipped for minor surgery, and a three-room school capable of providing instruction for pupils in grades 1 to 10. In contrast with the primitive surroundings is the commissary, carrying a variety of goods, while other niceties of urban life are evident in the barber shop, the post office and the self-serve laundry.

Joint Projects

By virtue of its seniority, Whitedog Falls has provided accounting, catering and hospital facilities for the integrated Caribou Falls development, both sites being connected by a 17-mile access road. The link between the two northern projects is also emphasized by the fact that construction supervision has been handled by a joint senior staff consisting of Construction Manager John Leighton, as well as Chester Jones, General Superintendent, and W. M. Reynolds, Field Project Engineer. While construction is less advanced at Caribou Falls, in view of the later authorization date for this 67,500-kw. development, present schedules call for completion of the three-unit plant by autumn of the present year.

Kenora Station

Power from the Whitedog Falls Generating Station is now being carried over a 30-mile stretch of new 115,000-volt line to Kenora Switching Station. An additional 11 miles of line will also transmit the output from Caribou Falls when it commences operation. Equipped with remote control facilities to control the operation of both plants, Kenora Switching Station will have a key role in feeding this additional power into the northwestern Division to meet the almost-insatiable demands of this prosperous and expanding section of Ontario — by the Editor.

REGULAT

O.M.E.A. District 5 delegates approve six resolutions during annual meeting



NOTED as they paused between floors to consult their program, these delegates from Paris, left to right, are: G. L. Foulds, Mayor A. F. Scott and C. A. Veigel.



JUDGING by their rapt expressions, delegates at the District No. 5 O.M.E.A. annual meeting found the discussion period both interesting and profitable. Held in the conference room of Brantford P.U.C., this year's meeting attracted a registration of 100 delegates.

A SHEAF of resolutions that ran the gamut from income tax regulations to obsolete office records shared the spotlight at this year's annual meeting of O.M.E.A. District No. 5 with a progress report on the association's labor relations program and a discussion of the effects of pooling low tension line costs.

Held in the handsome new office building of Brantford P.U.C., January 29, the meeting attracted almost 100 representatives of municipal electrical utilities in the Niagara-Hamilton-St. Catharines area.

Under the capable guidance of President W. B. Elliott, St. Catharines, the fast-moving afternoon business session gave first consideration to the employee relations program which, the Chairman explained, had been inaugurated early last year by the district executive, to assist member municipalities "to establish and maintain fair and stable employee relations." L. A. Flemming, representing the consulting service which is responsible for the program, was able to demonstrate the results of the first survey.

Published in loose-leaf form, essential information covering the main working conditions prevailing at each participating utility was compiled on separate sheets for easy reference, and to facilitate the inclusion of supplementary material when available. He showed how such items as wage rates, job classifications, paid holidays and other vital facets of the wage and benefit "package" had been organized as the result of the initial survey, and he emphasized the importance of this type of information during union bargaining sessions.

Chairman Elliott said that the program was still in its preliminary stages, and expressed the view that its full benefits could only be realized with the participation of all O.M.E.A. district groups.

In response to what he called "an increased interest on the part of municipalities in the methods of

ONS TO RECORDS



THIS YOUTHFUL TRIO from Dundas suggests the keen interest young men are taking in the electrical utility field. From left they are: John Sampson, Bill Wilson and John S. Wilson.



GAVEL in hand, President C. R. Buss, Thorold, calls the new District 5 O.M.E.A. Executive to order. From the left they are: K. C. Berney, Brantford; Roy Pierson, Brantford Township, 2nd Vice-President; W. B. Elliott, St. Catharines, Past President; Mr. Buss; Cecil Swayze, Welland; Frank Kaupp, Merritton, 1st Vice-President; and Thomas Barnes, Niagara Falls. H. J. Schneider, Port Dover, was not present at the meeting.

costing power," I. K. Sitzer, Director of Ontario Hydro's Consumer Service Division, discussed a sample 13th power bill, breaking down all those items which go to determine the cost of power per kilowatt. He said that the cost of power represented about 70 per cent of all utility expenses in the Southern Ontario System.

Cost Study

Mr. Sitzer dealt in some detail with the study now being carried out by the Commission, at the request of the O.M.E.A., regarding the pooling of low tension system costs. He said that the study was designed to determine the merits of sharing these costs among all associated municipal utilities in the Southern Ontario System in order to lift some of the burden from the smaller and more remote municipalities.

The speaker explained that low tension line costs were chiefly determined by the distance between high tension stations and areas of use. He showed how these costs varied in 1956 between zero and $15.90 per kilowatt per year among the utilities of the Southern Ontario System. In that year, he said, only 20 of the 325 cost contract municipalities in southern Ontario owned the low tension distribution lines connecting their systems to the Commission's transformer stations.

Approve Resolutions

Delegates approved six resolutions for presentation at the joint annual meeting of the O.M.E.A.-A.M.E.U. at Toronto. In essence, these were concerned with:

(1) Establishment of O.M.E.A. and A.M.E.U. committees to examine, in conjunction with Ontario Hydro representatives, the entire question of the costing of power.

(2) Adoption of a standard schedule for the retention of office records.

(3) Amendments to the Labor Relations Act to provide for vote by secret ballot in cases of jurisdictional dispute.

(4) Clarification of income tax regulations as they relate to the salaries of utility commissioners.

(5) Amendments to the Public Utilities Act to make the election of utility commissioners mandatory.

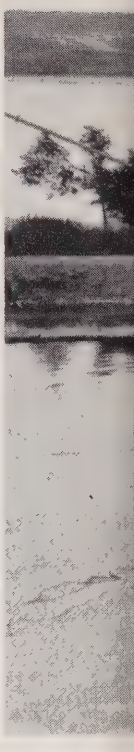
(6) Clarification of the Public Utilities Act as it concerns the terms of office of utility commissioners.

Elect Officers

The election of C. R. Buss, Thorold, as President of the association climaxed the business session. Frank Kaupp, Merritton, was elected 1st Vice-President and Roy Pierson, Brantford Township, 2nd Vice-Presi-

(Continued on page 27)

RIVER POLICEMAN



Hydro's Keith Henry mounts guard on water levels as the St. Lawrence River undergoes a face-lifting

by Gary Smith

EXALTED in verse and song for more than three centuries, the St. Lawrence River offers literally dozens of famed vacation spots where tourists and other holiday-makers may gather to view the majestic panorama of one of the world's largest rivers.

But while visitors may revel in the scenic grandeur of the St. Lawrence, Keith Henry, Hydro's River Control Engineer at Cornwall, keeps constant watch over its flow for an infinitely more practical reason.

Acting as a sort of river policeman, it is Mr. Henry's job to ensure that the flows and levels of the river are maintained during the construction of the St. Lawrence Power Project according to an international agreement approved by the St. Lawrence River Joint Board of Engineers. This arrangement will continue until the responsibility for the control of the river passes to the International St. Lawrence River Board of Control — a group composed of six men appointed for this purpose.

Basically, there are two reasons for maintaining natural levels and outflows from Lake Ontario during the construction period.

First, abnormal water levels would endanger and possibly damage shoreside development, not only along the St. Lawrence but in Lake Ontario as well. And secondly, generally natural levels are essential throughout the river area for the satisfactory operation of existing navigation facilities.

During the 1957 navigation season, for example, 11,546 ships navigated the International Rapids section of the river.

Under construction since 1954, the power project has involved the building of numerous cofferdams and permanent dam structures as well as the excavation of literally millions of tons of earth and rock in and around the river bed.

Master Plan

Thus, a knowledge of the effect of these operations on the river, and control of their timing was imperative to ensure safe construction of the project. After intensive model tests and studies, a master river control plan was evolved. This plan was approved by the St. Lawrence River Joint Board of Engineers — an international body having authority over all construction — as well as Ontario Hydro and the Power Authority of the State of New York. In accordance with the plan it was decided to invest authority for the control of the river in one man. Because of Keith Henry's long and varied background in model work and his valuable field experience during the complicated closure operations at the Des Joachims and Otto Holden Generating Stations on the Ottawa River, the Hydro engineer was selected to represent the various agencies concerned. In February, 1956, he arrived at Cornwall to take up the post of River Control Engineer.

Mr. Henry's assignment at Cornwall followed a period at Hydro's Hydraulic Model Laboratory located in the A. W. Manby Service Centre at Islington where the Commission has complete scale models of sections of the St. Lawrence River. Numerous experiments with the models helped devise construction techniques and the timing of the various steps in construction.

From his office at Hydro's Project Administration Office in Cornwall, Mr. Henry keeps constant check on water levels with the aid of a system of 32 gauges, each of which measures the level at various points in the river. From these measurements, the river flow is determined. Six of these gauges are telemetered to his office and afford an instant and permanent record of flow conditions. The remaining check-points are serviced weekly by two crews of checkers, who

(Continued on page 27)



CONCERNED with every phase of construction for the St. Lawrence Power Project that could affect river flows and levels, Keith Henry has found it necessary to visit every section of the project at intervals. Here he watches river excavation as a freighter passes through the Cornwall Canal.



PERIODIC TRIPS to Hydro's Hydraulic Model Laboratory at Islington are also necessary to witness tests, which are carried out in advance of construction work. Here he discusses a test with J. B. Bryce, Hydraulic Engineer (right).



INSPECTING work on the United States side of the river he stops for a discussion with Hugh Field (left) who, as Assistant Construction Manager, had a key role in the construction of the Long Sault dam in the river's south channel

VOLUMES OF POWER



Embracing a wide field of technical data, Hydro's library can also solve the problem of addressing a sheik

by DON WRIGHT



EACH YEAR some 500 technical books are selected from the overwhelming output of the world's publishing houses. In this photograph, Margot Keppenhahn of the library staff is restoring an armful of books to their proper niche amid the 10,000 volumes already on the library shelves.

SOMETIME in the dawn of recorded history, the unknown author of the Book of Ecclesiastics commented on the swelling tide of literary output with these words: "And further, by these, my son, be admonished, of making books there is no end."

Imagine the remarks of the Biblical historian if he could see the interior of a modern library. For since man first put chisel to stone – or quill to paper, at least – the number of books, periodicals, manuals, tracts and pamphlets has continued to grow with his expanding knowledge of the graphic arts, and in response to an apparent conviction that more and more of his thinking was worthy of posterity.

While only a few select drops of this literary flood have filtered through to the shelves of Hydro's specialized technical library, the amount and quality of the information on tap is sufficient to give it distinction among libraries established by electrical utilities.

Although not as broad in scope as a general reference library, the subjects covered by the Commission's library are almost as varied as the interests and occupations of the employees it is designed to serve. Between "The Speaker's Handbook of Humour" and the "Floor Maintenance Manual" lie some 10,000 volumes and many more periodicals and reports covering virtually every phase of electrical utility operation.

The presence of such well-thumbed tomes as "Transformation Calculus and Electrical Transients" and "Thermo-Dynamic Charts For Combustion Processes" in the well-stocked sections devoted to the various aspects of electrical, mechanical and civil engineering, signify an unquenchable thirst for knowledge among members of the Commission's technical staff.

The late Oliver Wendell Holmes, an American wit and poet of the 19th century, once observed that every library should be complete in at least one respect, "were it only the history of pinheads," – an injunction admir-



FROM THE STANDPOINT of telephone calls the library staff is the most popular in the Commission, for thousands of questions are answered in this way every year. Librarian Robin Adair (left) is shown answering a query, while Assistant Librarian Betty Martin is busy with a cataloguing project, another important duty of Ontario Hydro's nine-member library staff.

ably exemplified in Hydro's collection of data relating to hydraulic, thermal and nuclear-electric projects the world over. Neatly pigeon-holed for easy reference, information in this category spans the alphabetical spectrum from Abanico, Chile, to Zezere, Portugal.

Selection of Material

The selection of library material is complicated by the fact that scientific achievement is not confined to the English-speaking people. Fortunately, almost all the major nationalities are represented on the Commission staff by employees, who not only understand the language, but have the technical knowledge necessary to assess the contents of the various foreign publications. News of significant developments in the electrical field, whether reported in German, French, Italian or Russian, can, therefore, be utilized without delay.

Selection of some 500 books a year from the overwhelming array produced by the world's publishing houses is the exacting task of Librarian Robin Adair and her efficient staff of eight lady employees. An impression of the judgment that must be exercised can be gained from the estimate that 5,000 books, dealing with applied science alone, were published in the United Kingdom, United States and Canada during 1955. Then just to complicate matters for the Hydro library staff, the science-minded U.S.S.R. turned out almost 14,000 different volumes on this widely-ranged subject.

Books are chosen after a careful review of publishers' literature and examination of critics' remarks, while suggestions from Hydro personnel are always welcomed and weighed in making the selection. Specialized types of books, such as medical or legal texts, are transferred to the departments concerned, but even these are purchased and catalogued through the main library. Hydro's research engineers, like members of the legal

(Continued on page 16)



OBLIVIOUS of the presence of a photographer, several "patrons" of the Hydro library devote themselves to the pursuit of knowledge, while Sonia Kostigian of the library staff (foreground) consults one of the king-sized dictionaries, which are an invaluable source of information.

staff, must have constant recourse to the literary tools of their trade. Thus a branch library, substantial enough to require a full-time attendant, is maintained at the Research Division's Strachan Avenue laboratory in Toronto.

Choose 400 Magazines

The problem of distinguishing between "wheat and chaff" is even more acute in the magazine field. Here the selection is narrowed down to some 400 magazines, including 70 that deal specifically with electrical engineering. This might be considered just a representative drop in the world's "bucket" of periodical production, which is now estimated to exceed 30,000 distinct and separate publications devoted to various phases of science and technology.

But this fact emphasizes the necessity of control in magazine selection, since articles of this nature are rated, in many instances, as more important than books themselves. Their importance, of course, stems from the fact that magazine articles normally hold a two-year time advantage over book material – and time can be vital where new materials, techniques and developments are concerned. To ensure that Hydro employees have maximum access to this wealth of data, individual retention schedules have been worked out for most periodicals, while the basic engineering journals are retained indefinitely.

Another valuable source of information is represented by a wide range of special printed matter, comprising pamphlets, annual reports, government publications, association proceedings and hundreds of reports from electrical utilities in dozens of countries. Last year the Hydro library accumulated approximately 4,000 items of this nature.

In itself, this vast potpourri of information would have little value were it not possible to single out any one of its myriad components, quickly and accurately. Thus the details of library science are left with specialists.

Information Centre

Miss Adair and Assistant Librarians, Mrs. Joan Clayton and Betty Martin, all graduates of the University of

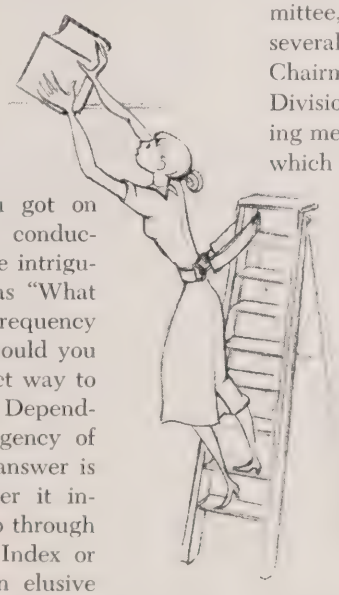


REQUESTS for information sometimes involve the linguistic talents of the library staff as well as their professional abilities. Here Assistant Librarian Joan Clayton consults a foreign magazine, one of the 400 periodicals on the Hydro subscription list.

Toronto Library School, demonstrate the wisdom of this policy, being able to track down the most elusive scraps of information with the efficiency of a computing device, and by methods best known to themselves. Their resources are further augumented by membership in the Special Library Association, whose members, representing almost every section of commerce and industry, are pledged to co-operate in the pursuit of facts and figures.

Members of the library staff frequently find it necessary to go to considerable lengths to obtain important works of reference, which may not be readily available through normal channels. On occasion it has been necessary to photostat entire books, page by page, while this procedure is almost routine in the case of magazine articles and similar short items. Books with a very limited circulation, and usually published privately, are particularly difficult to track down. But, when their subject matter is found to be vital to some phase of the Commission's operations, no effort is spared to locate them. The library staff is often advised when a particular line of study is being followed, and, in these instances, pertinent material is forwarded to the group or individual concerned when it is received.

The seldom-silent telephones on each desk represent another facet of library operation. Last year some 15,000 information requests were handled in this way. These included such conventional queries as the identity of the chief engineer of a public utility or the address of a manufacturer. But telephone enquiries also ran the gamut from "What have you got on aluminum bus conductors?" to the more intriguing types, such as "What is the electrical frequency in Mecca?" or "Could you tell me the correct way to address a sheik?" Depending upon the urgency of the request, the answer is produced, whether it involves a quick flip through the Engineering Index or the pursuit of an elusive fact to its hiding place in an unpublished paper.



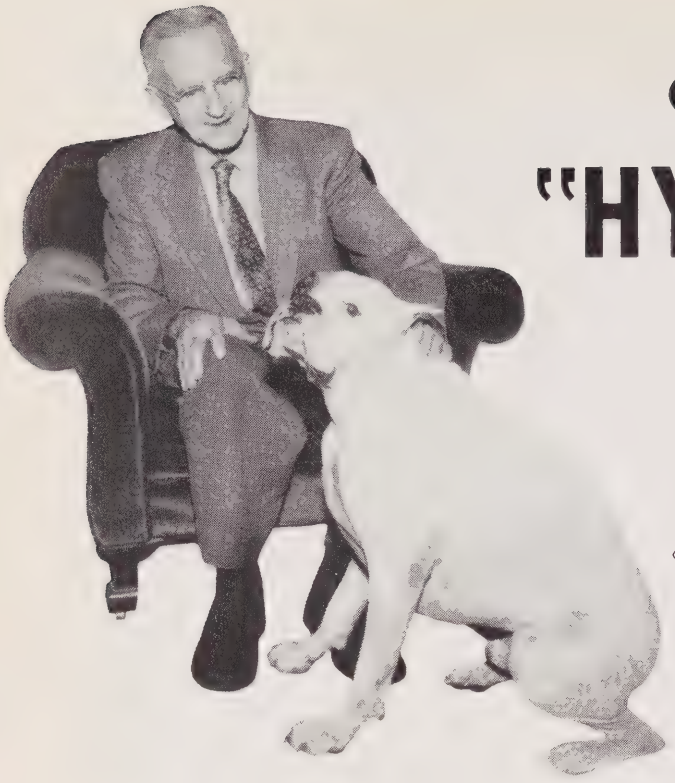
Circulation Figures

Circulation figures are one criterion by which to judge the popularity and usefulness of a library. Records for 1957 reveal that a total of 96,283 loans were made to Hydro personnel, either at Head Office, at regional headquarters, or to staff engaged at the various construction projects. Because of its specialized nature, the library contains material that cannot readily be obtained elsewhere, and for this reason students and other representatives of the public are permitted to use its facilities, provided, of course, that they do not interfere in any way with its main function. Today, an increasing number of A.M.E.U. representatives are finding its facilities helpful in their technical activities.

Matters of broad, general policy are administered by a Library Committee, composed of representatives of several Hydro Divisions. Its present Chairman is C. K. Duff, Planning Division, who is also the sole remaining member of the original committee, which was established in 1942, shortly after the library was put on an organized basis under the direction of Miss Phyllis Foreman, Hydro's first professional librarian.

The atmosphere of the Hydro library, in contrast with the more subdued tone generally associated with public and reference libraries, has been deliberately engineered to conform with the normal working environment prevailing in other departments of the Commission. With the completion of extensive alterations, now underway, it will be even better equipped to serve the growing needs of a complex and dynamic utility. ■

CHESLEY HONORS "HYDRO CHARLIE"



REMINISCING about Chesley's electrical history, C. J. Halliday pauses to bestow a friendly pat on a 90-lb boxer, owned by his son, C. H. Halliday, Manager of Ontario Hydro's Stoney Creek Area.

REFUTING the theory that a man is "without honor" in his own country, Chesley recently paid a unanimous tribute to one of its citizens who had established a unique record of civic service.

Retiring with the outstanding distinction of 52 years' active participation in municipal affairs, Charles John Halliday – sometimes affectionately called "Hydro Charlie" by his local colleagues – was guest of honor at a complimentary dinner on January 24.

Attended by representatives of many civic and province-wide organizations, including the O.M.E.A., A.M.E.U., and Ontario Hydro, this tangible demonstration of esteem for the 82-year old citizen was highlighted by an address read by his friend, Stanley Sanderson.

The address recalled the fact that Mr. Halliday had been a member of the village council for eight years, and on October 2, 1906, during his tenure of office, Chesley received its charter as a town to become the fifth town in the County of Bruce. Also cited were his untiring efforts to have Ontario Hydro take over the supply of electricity to the municipally-owned distribution system and plant. At last, in June 1916, during Mr. Halliday's four-year period of office as mayor, Hydro came to Chesley, its advent being "rather hurried." This was due to the fact that the Scone Power Station was still supplying Chesley with electricity while the new Chesley transformer station and distribution system were being built. At five o'clock a.m. on June 17, 1916, the "water-race" at Scone gave way. The council took up the matter with Ontario Hydro, which rushed through the work necessary to allow the "switch-over" to Hydro service supplied from its Eugenia Falls Generating Station. And so at eight o'clock Saturday morning, June 18, 1916, the first power from the Eugenia plant was turned on in the community.

"Hydro had come to Chesley, the first town in Bruce County to receive it, and Chesley does not forget your great service in this project," the address pointed out.

In 1920, Mr. Halliday became a member of Chesley's first public utilities commission and continued as chairman until his retirement at the end of 1957, a period of 38 years.

"Chesley may well be proud of its Hydro and waterworks system, no small credit being due to your initiative, ability and foresight," Mr. Sanderson said.

Active In O.M.E.A.

Continuing he recalled that Mr. Halliday's interest in Hydro affairs was not confined to Chesley. As President of the Eugenia Electric Association, he helped to amalgamate this organization with the Georgian Bay Municipal Electric Association, and in the course of his long membership served two terms as President, completing the second term in 1957. At present Mr. Halliday is Honorary President of this organization, as well as Honorary Vice-President of the parent Ontario Municipal Electric Association.

"And now, as a memento of your 52 years of public life in Chesley, and the

high esteem with which you and your wife are held in the hearts of your former municipal associates and the community at large, we beg you to accept this television set, and may you and Mrs. Halliday live long to enjoy it," Mr. Sanderson said in concluding his address. Signed: H. S. Sanderson, Town Clerk, 1916; S. R. Davey, Councillor, 1916; Thomas Stevenson, Chairman, Public Utilities Commission, 1958; E. G. Reaburn, Mayor, 1958; George Grabb, Town Clerk and Secretary, Public Utilities Commission, 1958."

The address, of course, did not include all details of Mr. Halliday's career, such as the fact that his first car — a 1916 model T Ford — travelled 125,000 miles, much of it campaigning for Hydro service. Mr. Halliday still drives — but another car.

Competed with Cousin

Nor did the address make any mention of the fact that Chesley's electrical facilities in 1906 were the property of Matthew A. Halliday, a cousin. But Charles thought the fact that better service would be provided by Ontario Hydro was more important than family considerations, and continued his campaign. Reminiscing during the banquet he said that Matthew never bore him any enmity.

Bringing greetings from Ontario Hydro, First Vice-Chairman W. Ross Strike said: "The bedrock of democracy is formed by men like Mr. Halliday in the local utilities, who keep the basis of democracy where it ought to be." Commissioner Lt.-Col. A. A. Kennedy, speaking as President of the Georgian Bay M.E.A., referred to the limitless help Mr. Halliday had extended to him, while O.M.E.A. President Gordon Fuller said it with flowers — a huge basket of them. Mrs. Halliday, too, was remembered by the presentation of a bouquet by Mrs. E. G. Reaburn on behalf of the Town of Chesley.

Joint Pole Use

In replying Mr. Halliday expressed pride that Chesley had pioneered the joint use of poles by Hydro and the telephone company.

Remarking that he had recognized his obligations as a citizen and had entered civic life at an early age, he referred to the assistance the town had received both before and after the formation of its electrical system from T. C. James, Ontario Hydro; Thomas Hannigan, Guelph; Sir Adam Beck, first Hydro Chairman, and Alfred Maguire, a former mayor of Toronto. He also paid tribute to the fine qualities of the staff now handling the operations of the utility.

Mr. Halliday caused laughter by concluding: "Although I've retired I'll still keep an eye on things and offer advice by invitation and criticism without."

Thomas Stevenson, now the second Chairman of Chesley P.U.C., was master of ceremonies, and he led the singing of "For He's a Jolly Good Fellow" to terminate an evening to remember in the history of Chesley and the honored life of "Hydro Charlie." ■

ADMIRING the television set presented to Mr. Halliday as a mark of esteem, this group includes (left to right): S. R. Davey, Mr. and Mrs. Halliday, H. S. Sanderson, town clerk when Chesley became a Hydro municipality in 1916, and Thomas Stevenson, present Chairman of Chesley P.U.C.



NEW SERVICE CENTRE

SYMBOLIZING its growth and development and the constantly-increasing electrical requirements of its citizens, Port Colborne recently celebrated completion of a new $40,000 service building erected by the town's progressive hydro-electric commission.

In the presence of Hydro and civic representatives from Welland, Toronto, Niagara and Port Colborne, J. R. McCullough, Manager of Ontario Hydro's Niagara Region, formally inaugurated the one-storey concrete block structure. The ribbon-cutting followed the presentation of keys for the new building to Chairman Ernest C. Barrick by the architect, Norman A. Kearns, of Welland.

Other members of the commission including Mayor H. H. Knoll, Commissioner Fred Cash, Superintendent A. E. Fort, and Secretary-Treasurer E. A. Jordan then conducted guests on a tour of the new premises.

Designed on functional lines by Mr. Fort, the new centre is located on newly-acquired property 400 by 250 feet, which provides ample space for expansion. Particularly advantageous is the building's proximity to a railway siding, which will facilitate the delivery of poles and other heavy equipment.

Completion of the compact, 91 x 58-foot service centre represents a remarkable step forward for the Port Colborne utility, permitting consolidation of garage facilities, meter department, workshop and storage space at one central point for the first time in many years. A loading bay, equipped with an overhead crane, in the four-truck garage makes it possible to move heavy equipment, such as transformers, to and from the adjacent storage room with complete ease. This section of the building is devoted to the operations of the lines department under Foreman David Thomas.

In the eastern wing of the centre, space has been provided for the meter department under the supervision of Glen Doan. Staff facilities include a lunchroom, as well as a combined locker and shower for the 15 employees using the building.

Complementary shades of gray and dun have been used in the interior decoration. Ample natural light is available, supplemented by illumination from fluorescent fixtures.

Several guests conveyed congratulations to the Port Colborne Commission, which played host at a dinner and reception following the opening ceremonies. Among those making brief addresses were Ellis Morningstar (M.P.P., Welland); Mayor Armour McCrae, Welland; Mayor Knoll; D. T. Flannery, Hydro's Consumer Service Engineer, Niagara Region; W. H. Walker, Chairman, Welland Hydro-Electric Commission; Police Chief James Stevenson; R. M. Sands, School Administrator; Reeve Nils Nissen, and Mr. Fort.

Climaxing the after-dinner proceedings, Mayor Knoll presented an O.M.-E.A. long-service certificate to H. G. Foote, who served on the Port Colborne Commission for 22 years. ■



J. R. McCULLOUGH, Manager of Hydro's Niagara Region (right), officially inaugurates the new service centre by cutting the traditional ribbon held by Port Colborne's Mayor H. H. Knoll, while Chairman E. H. Barrick looks on. Also witnessing the ceremony were (left to right): Lou Wurfel, Welland contractor; Architect Norman A. Kearns, also of Welland, and Port Colborne Commissioner F. W. Dash.



LOCATED on newly-acquired property adjacent to a railway siding, the building incorporates accommodation for four utility trucks.

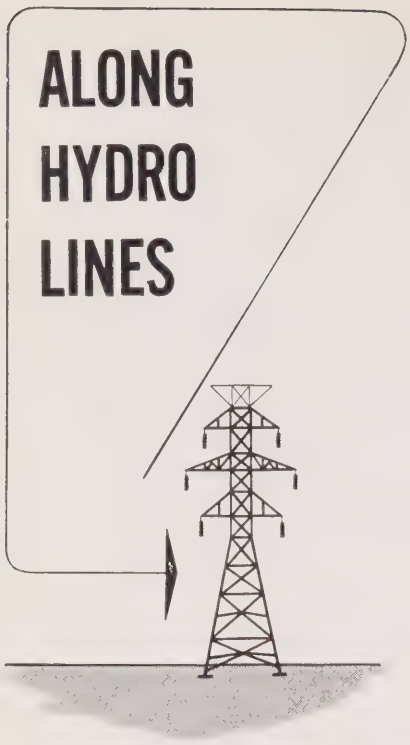
A CLIMAX APPROACHES



CONTRARY to the oft-repeated maxim that "comparisons are odious," the two views reproduced on this page indicate a very satisfactory state of affairs at the St. Lawrence Power Project. In the upper photograph, taken during the third week of February, 1956, the first concrete was being placed for the Ontario Hydro powerhouse in the excavated north channel of the river. Towering above the concrete formwork are the 300-ton gantry crane, as well as the concrete batching and mixing plant, which have been key units of the vast construction "mechanism" assembled by Commission contractors at this point. The intervening months have witnessed a remarkable change as approximately 96 per cent of the concrete has been placed for the Ontario Hydro powerhouse (shown in the lower photograph). A gap in the headworks above units 13 and 14 of the Ontario Hydro generating station (foreground) was filled earlier this month, while some concrete will be placed around the turbines under the main deck. Approximately two million cubic yards (four million tons) or enough to fill a "string" of railway cars 1,000 miles in length will be required to complete the entire structure.



During July this year water will flow down the north channel of the St. Lawrence for the first time in some three years. With this impressive "obstruction" blocking its path, the water will begin to rise, to create the necessary headpond for the huge, 1,640,000-kilowatt development. Then on September 5 Ontario Hydro and its international partner in the huge undertaking, the Power Authority of the State of New York, will officially place their respective powerhouses in operation, thus climaxing some four years of intensive construction activity and several decades of engineering investigation and international negotiation. ■



Ontario Hydro Announces $75 Million Bond Issue

Ontario Hydro recently marketed a new, $75 million bond issue, the proceeds of which will go to help finance its capital expansion program, which is moving ahead rapidly throughout the province.

The issue consisted of 4½ per cent bonds due March 1, 1978, priced at par, and 4 per cent bonds due March 1, 1966, priced at 98.32 to yield 4.25 per cent. They were offered by a nation-wide syndicate of investment dealers, headed by McLeod, Young, Weir & Co. Ltd., in denominations as low as $500 to suit the small investor.

Name Harry Nymark Dryden Hydro Manager

Harry A. Nymark has been promoted from Superintendent to Manager of the Dryden Hydro-Electric Commission. First associated with the Dryden Electric and Telephone System as a member of the temporary staff between 1930-1938, he joined the permanent staff in the latter year, and was appointed Superintendent in 1941.

Amherstburg P.U.C. Moves Into New Headquarters

Staff of Amherstburg Public Utilities Commission moved into its new headquarters last month. Plans are being made to hold an "open house" early in June, when residents and others will be invited to tour the new building.

Utilities Encourage 100-Ampere Services

Promoting adequate wiring in domestic premises, two Ontario utilities recently approved special allowances for customers installing 100-ampere services.

Bowmanville P.U.C. has authorized an allowance of $25 for every customer to offset the difference in cost over a 60-ampere service. The rebate will be made when the installation is passed by an Ontario Hydro electrical inspector.

At a recent meeting, Orillia Water, Light and Power Commissioners approved a cash bonus of $15 on electrical bills of residence owners installing 100-amp. services.

London P.U.C. Schedules $500,000 Network Program

A master plan for doubling the capacity of the downtown underground electrical network has been scheduled by London P.U.C. The expansion program, to be spread over the next 15 to 20 years, will cost approximately $500,000. The project, based on studies conducted with the aid of Ontario Hydro's network analyzer, will get underway immediately to meet anticipated load growth in the near future, General Manager V. A. McKillop announced recently.

Start Construction of New Orillia Area Buildings

Ontario Hydro has announced award of a contract to a Barrie building firm for the construction of a new area office and service building at Orillia. The new structures, when completed, will serve as the headquarters of the Commission's Orillia Operating Area.



KEITH L. BELLAMY

Keith L. Bellamy Named Chief Electrical Inspector

I. K. Sitzer, Director of Ontario Hydro's Consumer Service Division, has announced the appointment of Keith L. Bellamy as Ontario Hydro's Chief Electrical Inspector succeeding E. W. McLeod, who retired on January 31 this year.

Mr. Bellamy, who was born at Niagara Falls, Ont., in 1911, was educated at Stamford Collegiate Institute and graduated from Queen's University in electrical engineering. From 1945 to 1950 he was identified with electrical inspection in the St. Catharines Area, being Area Electrical Inspector for two years before his appointment as Deputy Assistant Chief Electrical Inspector. In 1952 he became the Commission's Assistant Chief Electrical Inspector and served in that capacity until his new appointment, which took effect on February 1 this year.

A member of the Association of Professional Engineers of Ontario and the Engineering Institute of Canada, Mr. Bellamy has been prominently identified with the Optimist Club, being a past Lieutenant-Governor and presently Boys' Work Director, District 15, Optimist International. He is also Vice-President of the International Association of Electrical Inspectors.

Aurora Favors 100-Ampere Service

Aurora Town Council recently concurred with representatives of the Aurora Hydro-Electric Commission that the installation of 100-ampere services in all new homes built is desirable.

Don Glass, Chairman of the Aurora Commission, emphasized that the requirement would not be retroactive. It would, however, bring new homes up to the Red Seal standard set by the Electric Service League of Ontario to adequately serve all appliances in the average modern home. The Aurora Council has authorized amendment of the local building bylaw to include this new ruling.

Standardization Program Now Nearing Completion

Ontario Hydro's 60-cycle frequency standardization program in southern Ontario was completed in February, with the exception of the City of Toronto and Leaside, which are scheduled to be on full 60-cycle operation by the fall of 1959. R. M. Laurie, Manager of Hydro's Western Region, London, in reporting recently that changeover crews were completing the alteration of certain special equipment in Ingersoll and sections of Oxford County, said "soon there won't be a red (frequency standardization) truck left in western Ontario."

The project was started in 1949, and is recognized as the largest undertaking of its kind in the world.

Capreol Host to A.M.E.U. Regional Delegates

Capreol played host to 60 A.M.E.U. members recently at an accounting meeting sponsored by the association's Northeastern Region executive. With President M. K. Rukavina, Kapuskasing, presiding and J. A. Ruttan, Ontario Hydro, as program chairman, the speakers included N. H. McKinnon, Sudbury, Northeastern Region A.M.E.U. Director; Dan Gorrie, Toronto, the Commission's Municipal Accounting Supervisor; H. G. Slean, field supervisor, Electric Service League of Ontario, and A. B. Hayman, Consumer Service Engineer, Ontario Hydro, North Bay.

Professional Engineers Showing Increase

There are 16,450 professional engineers now registered in Ontario, an increase of 1,352 as of a year ago, it was announced at the annual meeting of the Association of Professional Engineers of Ontario recently.

In a forecast of 1958, C. T. Carson, P. Eng. of Windsor, President-elect of the Association, predicted that the engineering profession in Canada was on the threshold of a new era in which professional recognition and professional status would be universally achieved.

Northern Crews Set Accident-Free Records

Ontario Hydro employees in Northeastern Ontario have established notable records for safety. H. R. Graham, Manager of Ontario Hydro's Northeastern Region, reported recently that the accident rate had been reduced approximately 40 per cent as a result of greater safety-consciousness among the Commission's employees. Kapuskasing Operating Area line staff were recently recognized for their record of 2,200 accident-free days. Similarly a Kirkland Lake crew set a new standard of 700 days without lost time.

NAMED LABORATORIES MANAGER

Dr. W. P. Dobson, Chairman, Administrative Board, Canadian Standards Association Testing Laboratories, has announced the appointment of Gordon B. Tebo as Manager of the Laboratories.

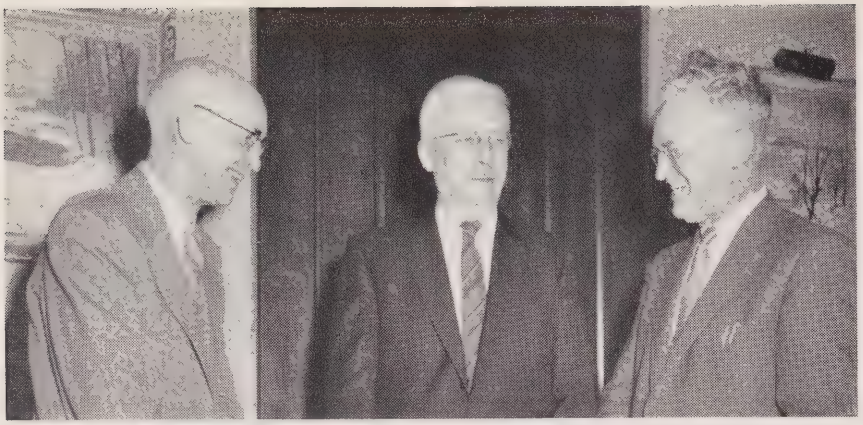
Mr. Tebo, who was born in Manitoba, received his early education in Ontario and graduated from the University of Toronto in electrical engineering with a B.A.Sc. in 1929. Joining Ontario Hydro the same year, he spent two years in the Operations field office at Hamilton, and then transferred to the Laboratory in Toronto, then known as the Testing and Inspection Department and later as the Ontario Hydro Research Division. Before his appointment as Director of Research in 1953, Mr. Tebo held a number of key positions in the Research Division, including that of Assistant Director. During the past year and a half he has served as Director of Employee Relations and also as Director of the Organization Services Division.

Mr. Tebo was elected to the Board of Directors of the Canadian Standards Association in 1955. He is a member of the Association of Professional Engineers of Ontario, the American Institute of Electrical Engineers, The Engineering Institute of Canada and the Engineers' Club of Toronto.

FORT WILLIAM'S FACE-LIFT

Fort William's main thoroughfare, May Street, has undergone a transformation in recent weeks with the replacement of its familiar, three-globe street lighting fixtures by new concrete standards equipped with mercury-vapor bulbs. In modernizing its street lighting system, the Lakehead city is planning to illuminate the heavily-travelled streets with the mercury-vapor fixtures. One advantage of the new type of standard, it is felt, will be its resistance to "sidewalk motorists" who, on frequent occasions, inflicted heavy damage on the older type.





OLD FRIENDS REMEMBER

At the retirement dinner for E. W. McLeod, Chief Inspector, Ontario Hydro, the much-respected "keeper of the codes" found time to reminisce with old friends . . . Harry Hawley, left, retired from the Approvals Inspection branch of the Canadian Standards Association, with whom he had worked closely for many years, and Harry Foy, right, Manager of the Electric Service League of Ontario. Speakers at the dinner in Mr. McLeod's honor stressed the role he had played in setting up regulations for the electrical industry in Canada.

"Mac's reputation is continent-wide," said Hydro's First Vice-Chairman, W. Ross Strike, Q.C. "He can be very sure that he has made a great contribution to the electrical field to which he has devoted his life."

Mr. McLeod was presented with an original oil painting by Hydro's electrical inspectors as a gesture of esteem. Many of these same inspectors journeyed from distant parts of Ontario to personally extend their felicitations.

Commission Renames Thermal-Electric Sites

A recent announcement of interest was the Commission's decision to redesignate a thermal-electric project on the shore of Lake Ontario, west of Toronto, as Lakeview Generating Station. Previously known as Long Branch Generating Station, the new plant will be located in an area, which for many years has been called Lakeview. Thus the new name will more accurately pinpoint the actual site of the Commission's new installation, which is destined to rank as one of the world's largest thermal-electric stations. To avoid possible confusion with the new thermal-electric site in the Fort William-Port Arthur area, previously designated as the Lakehead Generating Station, that project will henceforth be known as the Thunder Bay Generating Station.

Commend Manager For Prompt Action

Causes of an explosion at a joint in a 13,000-volt cable prompted St. Thomas P.U.C. Manager William J. Underhill immediately to report all the facts to the Electrical Employers' Association in order that they could be studied with a view to preventive action against similar occurrences in St. Thomas or other communities. Because of the unusual aspects of this explosion, the E.E.A. made the report the subject of a special questionnaire sent to utilities across Canada and the United States.

P.U.C. Chairman William Allan and other commissioners, commending the manager for his action, pointed out that if the purchase of any testing equipment resulted in saving one employee's life it would be well worthwhile, regardless of cost.

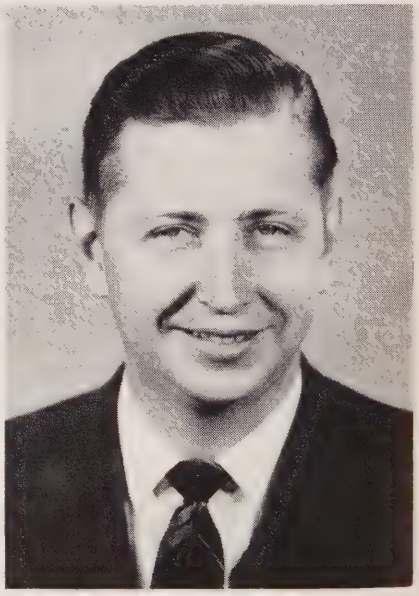
Kitchener Peak Loads Showing Advances

Kitchener's electrical demands are showing steady increases according to figures recently released by General Manager S. E. Preston. The peak load for 1957 occurred on December 10 at 5.20 p.m. when it reached 55,560 kilowatts – an increase of 2,157 kw. over the December, 1956 peak. Mr. Preston said that the city's peak load had doubled since 1946 when the peak demand was 27,166 kw. At the end of 1957, the utility was serving 19,757 customers.

Waterloo Names I. L. Bradley as Manager

Waterloo Public Utilities Commission recently announced the appointment of Ivan L. Bradley, P. Eng., 34, as Manager. Since the retirement of Eby Rush in 1955, Mr. Bradley has been Superintendent at Waterloo.

A graduate of Queen's University in electrical engineering, Mr. Bradley was employed by Canadian Westinghouse Co. Ltd. before joining the engineering staff of Waterloo P.U.C. During World War II he served for three years with the R.C.A.F. as a radar specialist. Married with two children, the young utility executive lists amateur radio and music as hobbies.



I. L. BRADLEY

Bowmanville Institutes Rate Reduction

A rate reduction instituted by Bowmanville P.U.C. will result in an estimated $24,500 reduction in revenue during 1958. The rate cut has been made possible largely by an increased use of energy by domestic customers averaging 405 kilowatt-hours a month in 1956, compared with 205 kwhr. in 1946, a boost of almost 100 per cent. The average 1946 kwhr. cost for domestic customers was 1.24 cents, compared with 1.12 cents in 1956. The new rates will reduce the average kwhr. cost by slightly more than 1/10 of a cent, providing average consumption is maintained or increased.

Brantford Plans Extension Program

A $266,000 Hydro expansion and rebuilding program has been authorized for 1958 by Brantford P.U.C., subject to Ontario Hydro approval of capital expenditures. Last year the approved two-year budget totalled $717,600, of which $485,000 was actually expended, leaving a balance of $232,600 to be spent this year. The utility has agreed to spend $90,000 of the budget – with hopes of effecting a saving by doing so – to purchase facilities financed by Ontario Hydro during 60-cycle standardization operations in the city.

Plan New Quarters For Kingston Area

Ontario Hydro is to undertake a building program for its Kingston Operating Area.

Two new structures, a 58 x 40-foot office building, and an 85 x 55-foot service building, are to be erected on old Highway 38. The new buildings are being located beyond the city limits to avoid traffic and facilitate customer parking.

Tenders have been called, and it is anticipated that the new buildings will be ready for occupancy by August 31 this year. The present area headquarters are located in space leased from Kingston P.U.C.



WINDSOR U.C. SERVICE CENTRE

UTILITIES EXPANDING

MATCHING Ontario Hydro's widespread expansion program, the associated municipal electrical utilities of the province are particularly active in extending Hydro service to a rapidly increasing number of customers. This accelerated load growth is reflected in many Ontario cities and towns by the notable expansion of building as well as electrical facilities.

Recently the operations staff of Windsor Utilities Commission's Hydro Division began occupying a new $625,000 service building shown in one of the accompanying photographs. The 140 x 400-foot structure provides space for more than 50 Hydro vehicles, stockroom and storage facilities; a vehicle repair and maintenance shop, as well as materials and operations offices. The new building permits the co-ordination of all electrical service facilities under one roof for the first time in many years.

Early in February Amherstburg's new public utilities building was occupied by the staff, while far to the north the progressive Fort William Hydro-Electric Commission completed a new $208,000 service centre. This new structure gave an impressive boost to the city's 1957 building figures, which were well over the 1956 total.



AMHERSTBURG P.U.C. BUILDING



FORT WILLIAM SERVICE BUILDING

Allow Two Months For Delinquent Accounts

Two months' grace will be allowed Hydro customers who are delinquent in paying their electrical bills, Waterloo P.U.C. members agreed at a recent meeting.

Convert First Hydro Plant

The first hydro-electric power plant on the Canadian side of the Niagara River, built in 1892 in Queen Victoria Park at Niagara Falls, is being remodelled by the Niagara Parks Commission.



DR. HOGG (left) is shown in the last photograph taken before his death as he received the Professional Engineers' Medal from Dr. G. Ross Lord on behalf of the Association of Professional Engineers of Ontario.

Dr. T. H. Hogg

An Ontario Hydro pioneer who rose to become its Chairman and Chief Engineer, Dr. Thomas Henry Hogg died suddenly in Toronto on February 24.

Only three weeks before his death, Dr. Hogg was honored at the annual meeting of the Association of Professional Engineers of Ontario by the presentation of the Professional Engineers' Medal. Presented to only five other persons since it was struck in 1947, this year's award to Dr. Hogg cited his "professional engineering skills, particularly in the devolpment of electrical energy from waterpower resources," which had "contributed in rich measure to the industrial and economic growth of Canada and to the resulting benefit of its people."

Born at Chippawa, Ont. on April 20, 1884, almost within sight of the Niagara River — whose waterpower potential he was destined to have a leading role in developing — Thomas Hogg attended Niagara Falls Collegiate. He graduated from the University of Toronto in 1907 with his degree in civil engineering. Dr. Hogg's distinguished achievements were further recognized by his Alma Mater when he was honored with the degrees C.E. (Civil Engineer) in 1912 and D. Eng. (honoris causa) conferred on him in 1927.

His association with the Commission's operations began shortly after graduation as Dr. Hogg was placed in charge of a crew conducting location surveys for the transmission lines that were to convey power from Niagara to the first group of contracting municipalities in southwestern Ontario.

After completion of this assignment he became associated with the Ontario Power Company, which supplied power to the infant Ontario Hydro, and served from 1909 to 1911 when he became Managing Editor of *Canadian Engineer*. In 1913 he joined the Commission as assistant hydraulic engineer. In this capacity he played a prominent part in the designing and construction of the first hydro-electric plant built by the Commission — the Wasdell Falls development on the Severn River. In 1924 he was appointed chief hydraulic engineer, and in 1937 became Chairman and Chief Engineer, serving in these capacities until 1947.

After his retirement he continued to serve as a Commission consultant, as well as acting in a consultant capacity to the Canadian Government, to the Provinces of Ontario and Manitoba, to the Nova Scotia Hydro-Electric Power Commission, as well as other power agencies. During World War II he was actively identified with the functions of the Combined Production and Resources Board. Dr. Hogg was also an official Canadian delegate to the World Power Conference. In addition, he acted for the Province of Ontario in conjunction with the Canadian Section of the Joint Board of Engineers on the St. Lawrence Waterways Project.

The deceased was a member of the Institution of Civil Engineers; the Association of Professional Engineers (Ontario); a Fellow of the American Institute of Electrical Engineers; a member and 1940 President of the Engineering Institute of Canada. He had also served as a member of the Senate of the University of Toronto.

Surviving are his widow, the former Miss Annie E. Speck, one son, Thomas John, of the Ontario Hydro staff, and two daughters, (Dorothy) Mrs. J. W. Hamilton, and (Eleanor) Mrs. Robert Bowlby. ■

Peterborough Builds Ninth Substation

The Erskine Avenue substation, the ninth in the Peterborough Utility Commission's system, brought into service recently, will enable power to be provided to new industries which locate in the area.



PRESS PRIZE

EXCELLENCE in news reporting among rural correspondents during 1957 was recognized by Ontario Hydro at the recent convention of Ontario Weekly Newspapers Association in Toronto. In the accompanying photograph, James A. Blay, the Commission's Director of Information, presents the Hydro plaque to Mrs. Marion Jeffrey, who writes a weekly column, "South River News," for the Burks Falls *Arrow*. Mrs. Jeffrey was selected by O.W.N.A. judges as the champion country correspondent.

Commission Plans New Kirkland Lake Office

Manager H. R. Graham, Northeastern Region, North Bay, recently announced that Ontario Hydro was planning to build a new area office building at Kirkland Lake, Ont. Mr. Graham said the present accommodation for administration purposes had become inadequate, necessitating the provision of larger quarters to handle increasing service requirements.

The new office will be located adjacent to the area service centre. The contract for construction of the new headquarters has been awarded to Hill-Clark-Francis Limited, a northern Ontario firm.

20 Years' Service

Milton J. Elliott, commencing his 20th year of service with Bowmanville P.U.C., was appointed Chairman for 1958 at the January meeting.

REGULATIONS TO RECORDS

(Continued from page 11)

dent. Directors elected were: Cecil Swayze, Welland; Thomas Barnes, Niagara Falls; K. C. Berney, Brantford, and H. J. Schneider, Port Dover. H. A. Howard, Thorold, was appointed Secretary-Treasurer.

In his address "Power Unlimited," guest speaker Norman Moore, Brantford, described technological progress in the past century, and he cautioned his listeners against complacency. Walker S. Pettit, Chairman of the Brantford Commission, welcomed the delegates at the annual dinner while brief messages were also given by Ross W. Strike, Q.C., Hydro's 1st Vice-Chairman; Commissioners D. P. Cliff and Lt.-Col. A. A. Kennedy; Gordon H. Fuller, O.M.E.A. President, and Dr. V. S. Wilson, Etobicoke Township. — by Don Wright. ■

RIVER POLICEMAN

(Continued from page 12)

also pick up the recorded information and forward it to Mr. Henry.

As an added measure, Mr. Henry himself makes frequent trips to Islington, near Toronto, to witness the tests which are continually being carried out on the models in advance of the actual construction work. In this way he familiarizes himself with the effects on the river of the various operations, and what river control must accomplish to ensure successful construction.

In actual practise, when a contractor's plan of operations includes work, which could affect the river, Mr. Henry is advised of the plan by Hydro's St. Lawrence Project Director Gordon Mitchell, or Frank Matekja the Project Manager of Uhl, Hall and Rich, Engineering Consultants for the Power Authority of the State of New York. Mr. Henry may suggest that the work be tested in advance at the Commission's hydraulic model laboratory to determine whether the operation is in accordance with the river control plan. If not suggestions for alteration to conform with the overall plan are worked out

When navigation may be affected, it is the river control engineer's job to obtain approval for the work from the Department of Transport through their representatives at Cornwall. He must also inform the St. Lawrence River Joint Board of Engineers, through their field representatives, and of the results of any model tests carried out, and obtain the Board's approval before work begins

Mr. Henry, who spends at least three days a week visiting the various construction sites, probably knows the face of the International Rapids Section of the St. Lawrence as well as any steamer captain who ever shot the Long Sault Rapids.

But the comparison probably ends there, for the early St. Lawrence River pilot had no control over water levels and shorelines. Hydro's Keith Henry does. ■

A. W. ST. JOHN

A. W. (Ted) St. John, Area Chief Clerk of the Commission's Uxbridge Area, and, for many years, Secretary-Treasurer of Uxbridge P.U.C., died suddenly recently. Formerly associated with the C.N.R., Mr. St. John joined the Ontario Hydro staff in 1937. Actively interested in fraternal and club activities, and prominently identified with several organizations of Trinity United Church, Uxbridge, the deceased is survived by his wife, a son and one daughter.

J. Clark Keith Compiles Windsor U.C. History

Windsor Utilities Commission has completed publication of a history comprising a period from 1872 to 1955.

From public records and his own diaries, J. Clark Keith, retired General Manager and now a consultant to Windsor U.C., has compiled a 260-page review of the Hydro and water activities in the four border municipalities, which, in 1935, were amalgamated and now constitute the City of Windsor.

In that year, Mr. Keith notes in a prologue, the Hydro assets of the utility amounted to $4,708,119. By 1955 this figure had increased to $12,264,046.

Blind River Area Expands Service

There was a power interruption at Elliot Lake recently, but residents of Ontario's new "uranium city" didn't object. It heralded improved electrical service for them, as Ontario Hydro was "cutting in" a new 230,000-volt transmission line (presently operating at 115,000 volts) between R. H. Martindale Transformer Station and nearby Blind River.

In announcing the interruption, Harold Simpson, Blind River Area Manager, said the Commission is also constructing a 115,000-volt line between Blind River and the Elliot Lake Transformer Station, which will involve the installation of additional transformation equipment at the latter plant.

The construction of new lines to serve the Blind River Operating Area, which includes the world's major uranium-producing mines and the Elliot Lake townsite, will ensure even more dependable service for the area's customers, which have been increasing at an almost phenomenal rate.

Since December, 1954, when Ontario Hydro took over service to Blind River, 398 new customers have been added, with a total of 1,097 being served at the end of 1957. Last year, too, the Commission made a record total of 3,408 new installations in Elliot Lake and in the surrounding area. As announced previously a sub-area office will be established at Elliot Lake to handle the increased volume of business.

Oshawa Utility Plans Electrical Program

Oshawa P.U.C. has estimated that expenditures for the year will total approximately $622,797. This figure includes an allocation of $563,207 for the works program of the Electrical Department, including substations, overhead and underground extensions and an anticipated additional 600 domestic services subject to the approval of Ontario Hydro.

The estimated 1958 surplus of the Electrical Department, based on 1957 operations, less the approved reduction in the water heater revenue, is $340,000, and debentures are to be issued if necessary to finance the balance of the electrical program.

CANADA'S TRADE PATTERN

(Continued from page 5)

I maintain, therefore, that the policies which the Dollar Sterling Trade Council are pursuing, and which have been greatly stimulated by our splendidly successful trade mission to the United Kingdom, are not only clearly in the best interests of Canada, but in the best interests also of Great Britain and of the United States.

During our recent visit to Britain we gave our friends over there a great deal of advice concerning the steps which they should take to obtain a larger share of our imports, but there are many things, which we also can do to encourage our fellow Canadians to co-operate in this task. We have no tools to work with other than those of persuasion and voluntary action, but these are powerful tools if well handled and voluntary action on our part is far better than the alternative of import controls or higher tariffs.

To strengthen its endeavours, and to follow up and capitalize upon the interest generated by the Canadian Trade Mission, the Dollar Sterling Trade Council will be broadened and strengthened. Members of the Trade Mission, chosen for their geographical location and their broad representation of the economic life of this country, will join its Board, bringing with them the added strength of their experience, their enthusiasm and their determination to assist Britain in obtaining a larger share of our total imports. ■

CANADA'S TRADING POSITION

(Continued from page 1)

many American citizens that the disparity in our trading balance with the United States will ultimately undermine Canada's economic structure to such an extent that commerce between the two countries may be seriously affected in the near future. A remedy for the latter situation, greatly favored by Canadians, would, of course, be a substantial increase in our exports to the United States.

Meanwhile there is undoubted merit in Mr. Duncan's expressed contention that the policies of the Dollar Sterling Trade Council are "in the best interests of Canada, and also of Britain and the United States." ■

Cook dinner and see a show



for less than 3¢

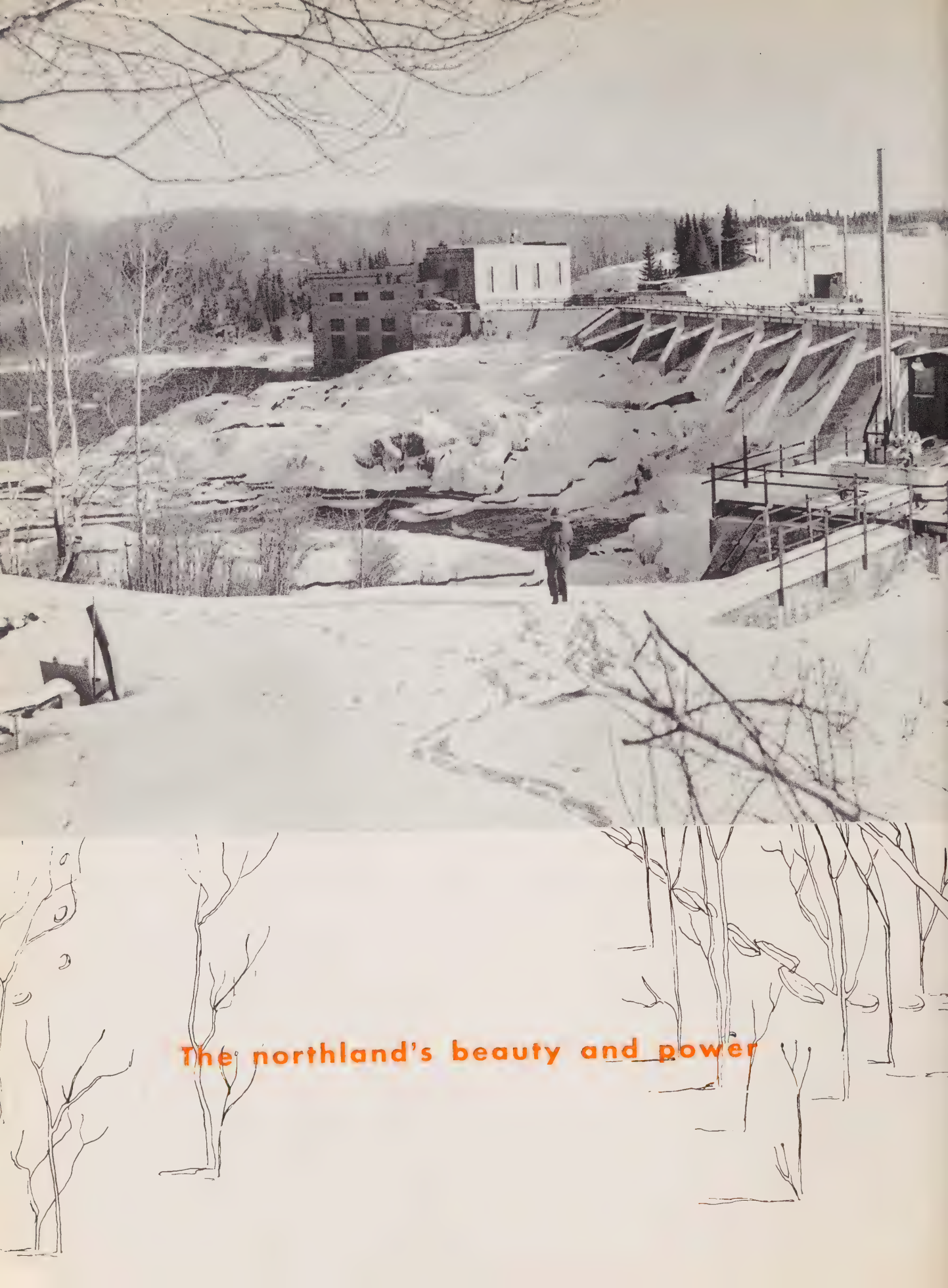
...*electrically!*

With electricity, you can cook dinner for your family... and afterwards watch television for 4½ hours... for *less than three cents!* That's *real* economy!

And it's just one more reason why you... live better... electrically... the safe, clean, modern way.

ELECTRICITY DOES SO MUCH... COSTS SO LITTLE

(Sample advertisement – mats available to the associated municipal utilities for use in local "Live Better Electrically" campaigns)



The northland's beauty and power





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APRIL, 1958

ONTARIO HYDRO NEWS





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ONTARIO HYDRO NEWS

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COVER PHOTOGRAPHS

Saluting this year's O.M.E.A.-A.M.E.U. Convention our covers this month present a cross-section of the varied events of the 1958 annual meetings of the two associations.

A HEALTHY GROWTH

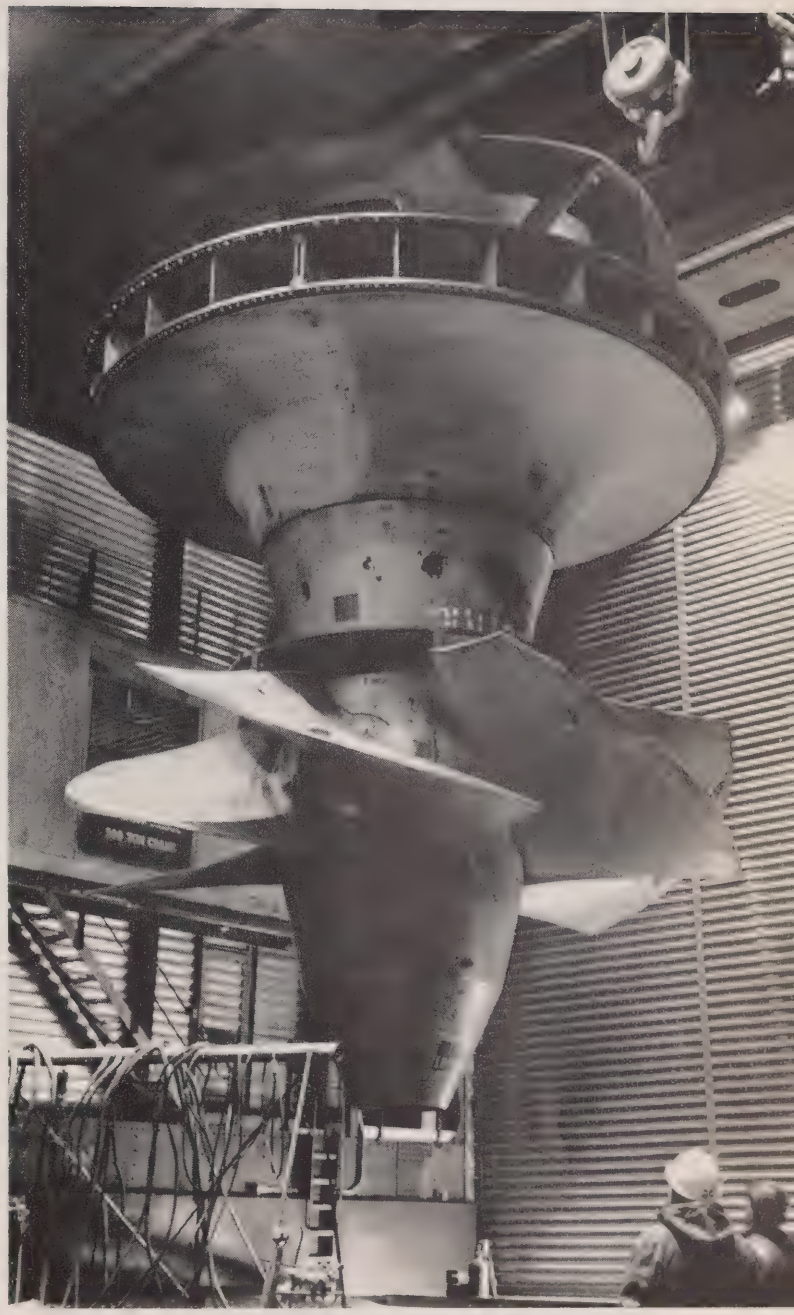
ALTHOUGH it is a widely-acknowledged fact that the Canadian economy during 1957 reached what some economists have termed a "plateau" — reflected by adjustments in certain phases of industrial activity and employment — there were, on the other hand, many refreshing indications of continued growth and development throughout Canada and particularly in Ontario.

The Prime Minister, Hon. Leslie M. Frost, who recently tabled the 1958-1959 budget in his capacity as Provincial Treasurer, unfolded a story of impressive accomplishment in Ontario last year. Premier Frost revealed, for example, that the province's employment figures registered an advance to an average of 2,106,000, compared to 2,055,000 in the previous year. Total personal income rose five per cent last year, reaching a record level of $9,100,000,000 — more than double the 1945 total, and representing 40 per cent of Canada's total personal income.

Equally significant was the budget disclosure that Ontario's population increased by approximately 18,000 a month in 1957, which was considered to be one of the most rapid rates in the world. The provincial population at the beginning of the present year was estimated at 5,750,000 — an increase over 1956 of 210,000 or four per cent.

In this issue we direct attention to certain Commission achievements last year that further illustrate the tempo of the provincial economy. Ontario Hydro Chairman James S. Duncan in reporting to O.M.E.A.-A.M.E.U. delegates during their recent convention (see page 2) pointed out that the Commission's continuing studies of the province's future power requirements revealed "no cause for pessimism"; they, in fact, appeared to indicate that Hydro must maintain its planned rate of expansion to meet Ontario's anticipated electrical demands. While peak demands on the Commission's Southern Ontario System last year were affected by certain declines in industrial activity and periods of abnormally mild weather, resulting in an increase of only four per cent over the previous year's peak demands, there were impressive increases in northern Ontario's power consumption. Demands in the northeastern section of the province showed a gain of 17 per cent, while northwestern Ontario demands were 14 per cent higher than those of 1956. Despite increased competition from other forms of energy in some areas, the Commission's figures for 1957 indicate that deliveries of energy to the municipal electrical

(Continued on page 35)



DWARFED by a 180-ton turbine runner assembly, three men watch as the massive piece of equipment is lowered into the generator pit for one of the 16 units at Ontario Hydro's Robert H. Saunders-St. Lawrence Generating Station.

OPTIMISTIC NOTES



ONTARIO HYDRO CHAIRMAN JAMES S. DUNCAN

Ontario Hydro Chairman announces $3½ million rebate to municipalities

Addressing O.M.E.A.-A.M.E.U. delegates during their first joint session at the recent convention, Ontario Hydro Chairman James S. Duncan struck a confident note with his statement that the Commission's continuing studies revealed "no cause for pessimism."

Although there had been a "levelling off" in the economy, and the increase in power demands during 1957 was not as great as in previous years, these studies appeared to indicate that Ontario Hydro was "justified in maintaining its planned rate of expansion."

"In fact we must do so if we are to meet the anticipated power requirements of this province," he observed.

Annual Rebate

One of the highlights of this annual review of operations was Mr. Duncan's welcome announcement that 310 of the 333 municipalities served by Ontario Hydro on a cost basis would receive refunds totalling more than $3½ million this year. This figure consists of $3,427,495 to be rebated to municipal cost-contract customers in the Southern Ontario System, and $144,919 in the Northern Ontario Properties.

Of equal interest to the delegates was Mr. Duncan's gratifying assurance that "there will be no general increase in the wholesale cost of power to the municipalities during 1958."

Continuing his remarks relating to the rebates to the municipal cost systems, Mr. Duncan dealt briefly with the two factors which were responsible for lowering the refunds in the Southern Ontario System.

A number of reductions in the interim rates established at the beginning of 1957 had served to reduce the margin between the interim rate and the actual cost. Last year the average cost of power to the southern Ontario municipalities was $36.85 per kilowatt, compared to $37.16 in 1956. In the Northern Ontario Properties, where refunds were greater than in 1956, the average cost to these municipalities was $31.27 per kilowatt last year and $32.28 in 1956.

"The Commission feels that it is desirable to increase reserve provisions with a view to stabilizing the cost of power in the years ahead," Mr. Duncan also pointed out in referring to the second factor.

From time to time, the Commission had considered it desirable to review its policy with respect to these reserves for rates stabilization and contingencies. Accordingly the matter was again referred to Hydro's financial consultants. Their report re-confirmed previous reports made in 1948, 1951 and 1953, that the Commission's reserves were not excessive.

Development Costs

In this connection he said that Ontario Hydro was faced with substantial expenditures for nuclear power development work over the next few years. Coupled with this was the fact that water conditions could not be expected to be as favorable as they had been for the last two

years, and consequently increased coal consumption might be expected in the future.

In view of these circumstances it had been deemed prudent to make a reserve provision of $4,000,000 against nuclear development costs, of which $1,300,000 had been expended to December 31, 1957, resulting in a net increase in reserves of $2,700,000. Further provisions would be made in the future with a view to writing off presently planned nuclear development costs over a period of three to four years.

"We have also made a special provision at the rate of $1.50 per kilowatt in the Southern Ontario System to offset increased coal consumption costs if low stream flows are experienced in the future. In the Northern Ontario Properties, the special provision for rates stabilization was reduced to $2.00 per kilowatt in 1957," the speaker continued.

As a test of the adequacy of its reserves at the end of 1957 (excluding the nuclear power development reserve of $2,700,000) the Commission had considered a number of important factors:

(a) The possibility that for some extended period, loads, for which generation and supply facilities are built, may fall below expectation. It was considered necessary, therefore, to carry a reserve equivalent to 50 per cent of one year's cost for this purpose.

(b) In a combined thermal and hydraulic system, any fluctuations in stream flows from median flows was immediately reflected in the amount of coal burned. The Commission's Operations Division had estimated that in a low water year this would require the burning of 1.5 million additional tons of coal averaging $8.50 per ton.

(Continued on page 4)

DELEGATES FILLED THE CONVENTION HALL TO HEAR MR. DUNCAN'S REVIEW OF ONTARIO HYDRO OPERATIONS.



(c) The Commission did not carry insurance against physical damage to operating plant, except steam turbines, generators and boilers. A reserve equivalent to 1 per cent of fixed assets was considered desirable to provide a fund from which the Commission might meet a physical catastrophe, similar to those which were reported throughout the industry from time to time.

The Reserve for Stabilization of Rates and Contingencies at the end of 1957 was $3,000,000 less than the amount required by these standards. A further matter which could not be evaluated was the foreign exchange risk relating to a net debt totalling $266,896,000 in U.S. funds.

Frequency Standardization

Keen interest was manifested in Mr. Duncan's references to several aspects of the Commission's frequency standardization program during his comprehensive address. "Today we look back on the completion of some 90 per cent of the program," the speaker said. "Generally speaking, only certain parts of Toronto and Leaside remain to be standardized."

"Completion of the entire program in 1959 will establish the 60-cycle frequency throughout Ontario, placing it in line with the standard prevailing in all but a few isolated sections of the North American Continent. The cost to the Commission for work completed in southern Ontario on this tremendous undertaking to the end of 1957 was $314 million. We are confident that the ultimate total cost of this program will be less than the $400 million estimate which was announced some years ago."

The Chairman also stated that if estimates of load growth were fully realized, the cost of the entire frequency standardization program would be completely amortized somewhere between 1970 and 1973.

Mr. Duncan also dealt at length with the Commission's policy on the assessment of costs relating to the frequency standardization program.

The costs of frequency standardization in the Southern Ontario System, he said, were assessed against the municipalities in the original 25-cycle area on the basis of their year to year load. As a result, no municipality derived any cost advantage by virtue of its position in the program. This method was adopted, first, because of the impossibility of converting the entire system at one time; second, for reasons of planning and economy, it was necessary to standardize first those areas where the greatest load growth was taking place and, to some extent, where the field force could be employed to the best advantage. Then, too, it was obvious that future electrical customers within the former 25-cycle area would benefit just as much as, if not more than, those being served now.

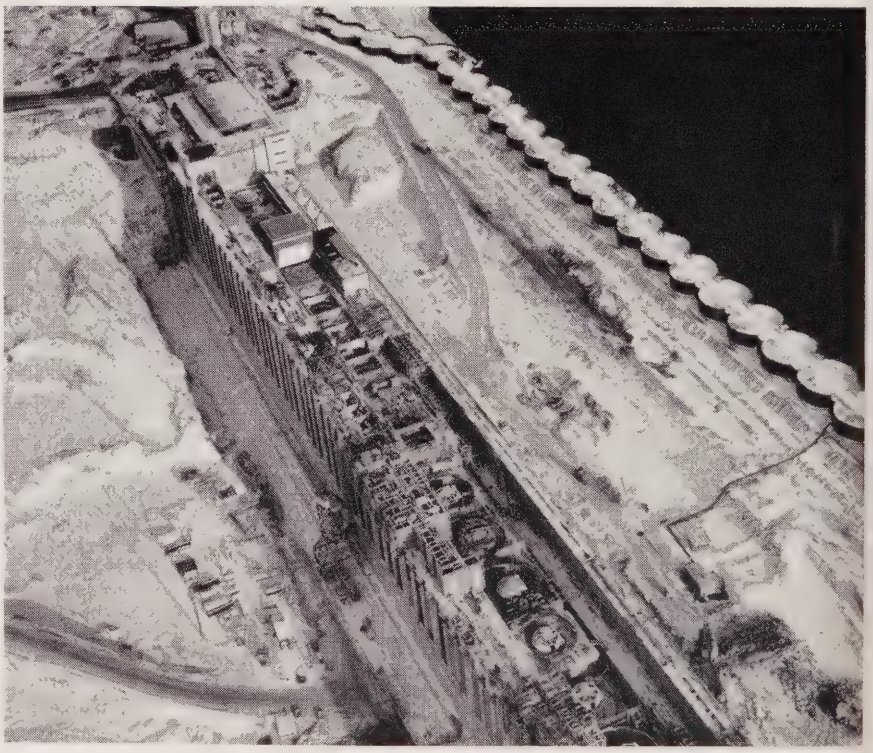
"Consequently, the costs of standardization will continue to be distributed over all loads in the original 25-cycle area, including load growth, after standardization is completed, until the program is paid for," he pointed out.

Record Revenue

The growth of Commission operations could be gauged to a certain extent by the record total revenue of $200.8 million received last year, an increase of almost eight per cent over that for 1956, the speaker pointed out. Total assets of the provincial utility reached a figure in excess of $2.26 billion by the end of last year, compared to $2 billion in 1956. "On the other side of the ledger," Mr. Duncan stated, "our long-term liabilities stood at approximately $1.57 billion."

Increased Deliveries

There were gratifying indications that the municipal utilities, as a whole, had a sound financial year, Mr. Duncan said. Figures for 1957 indicated the quantity of electrical energy delivered to the municipalities increased by 6.5 per cent over the previous year. Despite increasing competition from other forms of energy



AERIAL VIEW of Ontario Hydro's Robert H. Saunders-St. Lawrence Generating Station showing work in progress on the installation of turbines and generators. More than 80 per cent complete by the end of 1957, the project will deliver its first power during July this year.

experienced by some municipalities, there was evidence that the people of Ontario were using more and more electric power.

"We cannot afford, however, to relax amidst past accomplishments. The time has come when we must promote the product which we sell," Mr. Duncan said in appealing for close co-operation of all municipalities in the "Live Better Electrically" campaign launched at the end of 1957.

Discussing the general power situation, Mr. Duncan said the overall growth in demands for power was six per cent, despite a decline in industrial activity in certain quarters over the last year. When compared to the major systems in the United States, for example, which experienced an average growth in demands of only 2.8 per cent, the Commission felt that there was reason for gratification in the fact that a healthy growth had been maintained during a period which suffered some economic fluctuations.

Tangible evidence of Hydro's efforts to maintain the rate of expansion of its resources was provided by the 6.4 per cent increase during 1957, to a total of almost five million kilowatts.

In recalling the achievements of the last 12 months, Mr. Duncan emphasized the fact that the present projects on the St. Lawrence and Niagara Rivers "constitute the last major sources of hydraulic power in the province."

Fully conscious of these factors, the Commission had announced plans for two of the world's largest thermal-electric plants in the heavily-industrialized Toronto-Hamilton area. The first of these plants, to be located west of Toronto, will be known as the Lakeview Generating Station, and will represent an estimated $250 million capital investment. It will have an ultimate capacity of 1,800,000 kilowatts. It is anticipated that the second plant will be located in the Hamilton area and will be similar in character.

To meet the soaring power demands in northwestern Ontario, construction of a new thermal-electric plant (the Thunder Bay Generating Station) at Fort William had also been authorized. This will be a $26 million plant and will be operating by 1961 with an initial capacity of 110,000 kilowatts. It was considered possible that this station would eventually be required to generate as much as one million kilowatts.

Also in the realm of thermal-electric generation was the further expansion of the Richard L. Hearn Generating Station in Toronto. The present capacity of this plant will be progressively augmented in 1958, 1959 and 1960 by the completion of four additional units raising its ultimate capacity to 1,200,000 kw.

Mr. Duncan also referred to the fact that work was being resumed on the small-scale nuclear-electric experimental plant, NPD, scheduled for operation in 1961. In conjunction with Atomic Energy of Canada, Ltd., Ontario Hydro would also be participating in development work on a large-scale nuclear-electric station. The Commission was still hopeful that Canada's first major plant of this type would be available for base load operation in 1965 or 1966 on a basis that would be within competitive cost range of coal-fired stations, Mr. Duncan pointed out.

Gratifying Progress

Gratifying progress had been made on the Commission's St. Lawrence development, which was more than 80 per cent complete at the end of 1957, and on the Niagara project which will be in full operation in 1958.

Commenting on the importance of electricity to the agricultural segment of Ontario's economy, the Hydro Chairman recalled his announcement of last November regarding the broadening of density requirements for farm line extensions. Under these new provisions the Commission would build two-thirds of a mile of line along a public road to any established farm instead of one-third of a mile, as formerly.

"Today, electrical service is available to 94 per cent of Ontario farms. Through this policy change we will bring electricity within the reach of yet a higher percentage of our farmers, and if one takes into consideration the size of the territory served and our relatively sparse population, this is a record of service which cannot be exceeded in any country throughout the world," he added.

There were other achievements for which Hydro representatives could justifiably take credit, Mr. Duncan said. "We have stood firm against the mounting tide of inflation and supplied electric power to our customers at costs which can be rated among the lowest in the world. If, in doing so, we have contributed to a stabilized economy and a high standard of living in this province, then we have all discharged our obligation to the people." ■

ROLL CALL

ATTENDANCE at this year's O.M.E.A.-A.M.E.U. Convention was one of the highest in recent years; the official registration reached a final figure of 954.

Because of alterations taking place at the Royal York Hotel, four other Toronto hotels were also used for accommodation. However, the Chairman of the Inter-Association Committee, Dr. V. S. Wilson, reported that the management had assured space for all delegates attending the 50th meeting next year.

The hotel has set February 23, 24 and 25 as the tentative dates for the 1959 convention, but the Inter-Association Committee has requested a change to March 9, 10 and 11. No final decision has yet been made on the question.

In regard to funds, the Auditor's Report on the committee's operations showed that the Joint Convention account had a bank balance of $1,519.14 at the end of 1957. ■



PRESIDENT GORDON H. FULLER delivered the opening address at the O.M.E.A. convention — the 49th annual meeting of the association.

O.M.E.A. Officers Present Reports

SOME PARALLELS FR

Delegates assembled for the largely-attended convention banquet.



THE 49TH

Reviewing the 1957 activities of the Ontario Municipal Electric Association at the recent 49th annual meeting this year, retiring President Gordon H. Fuller, said this gathering was significant as a "signpost of things to come."

Pointing to the fact that the association would mark its 50th anniversary next year, Mr. Fuller proudly asserted that the O.M.E.A. had been "associated with Hydro's development from its cradle days, and has played some part in raising it to manhood's estate."

Being close to the pulse of the individual communities in Ontario, the O.M.E.A. had the responsibility of "diagnosing" local conditions and suggesting remedial measures.

Three Links

Ontario Hydro, the O.M.E.A. and A.M.E.U. represented the three links forming the structural framework of Hydro, Mr. Fuller continued.

"If the Commission may be construed to be the head, then the other two organizations combined are the heart, the circulatory and the nervous systems through which all parts of the province are reached, informed and served."

Discussing Canada's early development, with emphasis on Ontario, Mr. Fuller pointed out that "we, who have lived for 50 years, have seen more growth and progress in this great Hydro province than in all its previous history – recorded or unwritten."

In his address, the O.M.E.A. President voiced his appreciation and increasing respect for the members of the association and the contribution of the district groups. "Each district association has its own commendable attributes, but they all display an uncommon measure of common sense in dealing with their own problems."

In an organization as large as the O.M.E.A., differences of opinion could be expected. "If this convention were to pass into history without opposing views, honestly expressed, this association would have outlived its usefulness, and could be disbanded as having no reason for its continued existence," Mr. Fuller declared.

The O.M.E.A. organization, during the past year, had comprised 17 active committees, which had carried out "the bulk of the O.M.E.A. work." Scanning the O.M.E.A. membership, the speaker observed that there appeared to be a change of about 25 per cent a year in the personnel.

Mr. Fuller also lauded the new custom of holding district meetings at various points throughout the district. "It has been proven they are just as well-attended and equally as successful when held in one of the smaller municipalities." Resolutions presented at these district meetings were among the most interesting items on the agenda. Indicating that there were unsolved problems and unsatisfied needs throughout the province was the fact that one or more resolutions had been received from every district association for consideration and approval by the parent body.

Cause For Concern

The availability of competitive forms of energy in a rapidly-increasing number of communities "will cause you genuine concern," Mr. Fuller predicted. In this connection, he pointed out that this competition in his home city of Windsor had "predated public distribution of electricity," resulting in the loss of much desirable and profitable business. Dealing specifically with electric water heaters, Mr. Fuller urged that "every step be taken and every effort made, not only to retain your present customers, but to pick up new ones in all types of premises as they are constructed."

Reporting briefly on several phases of O.M.E.A. activities during 1957, Mr. Fuller made specific mention of the proposed formation of a "school" to train utility management in the art of dealing with personnel problems. A committee, appointed to consider this matter, had recommended that a training course be established in conjunction with Ontario Hydro's Personnel Branch. The location, time and subject matter would be arranged by mutual agreement between Ontario Hydro representatives and officers of the A.M.E.U., with complete co-operation being fostered by the O.M.E.A., he stated.

Secretary-Treasurer's Report

Steady growth of the association was reflected in the report presented by Secretary-Treasurer D. P. Cliff, following Mr. Fuller's opening address, indicating that eight municipalities had joined the O.M.E.A. during 1957, bringing the total membership to 309.

Considering that these member municipal systems accounted for more than 99 per cent of the power purchased by all of the associated municipal electrical utilities, the O.M.E.A. could truly be described as "a representative organization," Mr. Cliff continued.

"We should not rest content, however, until the O.M.E.A. embraces 100 per cent of the municipalities served by Ontario Hydro," he urged.

Financial Report

Substantiating the flourishing membership position of the association was Mr. Cliff's brief review of its financial operations during which he pointed out that there was more than "one year's normal revenue in reserve amounting to $11,016, made up of cash and bonds." An over-expenditure of $592.28 on the year's operations, as indicated in the auditors' statement presented by Dr. R. A. Patterson, Kemptville, was due, largely, to the decision of the Board of Directors to

(Continued on page 8)



LT.-COL. A. A. KENNEDY, Ontario Hydro Commissioner and O.M.E.A. Past President, presented a high-fidelity record player to retiring President Fuller (right) during the convention banquet to express appreciation of Mr. Fuller's services.

revise and reissue the publication, "Functions of a Local Commission."

A copy of this booklet was sent to all commissioners in the province, the speaker reported, and requests for additional copies were fast depleting the stock of 3,500 which had been published. Mr. Cliff expressed appreciation to W. Ross Strike, Ontario Hydro's First Vice-Chairman, the author of the book, which provided valuable guidance for local commissioners.

During the year the Board of Directors attended four regular meetings and one special joint meeting with the A.M.E.U. executive committee, while the Executive Committee of the Board met district secretaries to assist in planning district annual meetings.

O.M.E.A. Committees were particularly active in 1957, holding numerous meetings, which dealt with such matters as advertising, sales promotion, labor relations, gas competition, annexation and pooling of low tension power costs.

Lauding the role of the district association in O.M.E.A. affairs, Mr. Cliff told delegates that "regular attendance at your local commission meetings does not completely fulfil your obligation as a Hydro commissioner unless the same faithful service is rendered to your district organization."

In dealing with the action taken on resolutions approved at the 1957 annual meeting, the speaker reported on the status of such matters as co-operative motor vehicle and fire insurance; advertising; pooling of low tension transmission costs and sinking fund equities, and indicated that special reports on these subjects would be presented during the 1958 meeting.

A resolution approved at last year's meeting requested legislation requiring manufacturers to indicate the voltage and life-hours on all electric light bulbs sold in Canada. This request had been forwarded to the appropriate department of the Canadian Government for consideration. "The government stated that there were factors other than quality, which governed light bulb life, making it difficult to draft any suitable type of order, and thereafter to enforce it," Mr. Cliff stated.

Praise and admiration for the worthwhile public service rendered by the Association had been expressed by Prime Minister Leslie M. Frost in response to a resolution commending the Ontario Government for its recognition of the O.M.E.A., manifested by the appointment of three past presidents to the Ontario Hydro Commission.

In concluding his report, the O.M.E.A. executive officer referred to the recent retirement of C. J. Halliday, of Chesley, with an outstanding record of civic service and participation in O.M.E.A. affairs to his credit.

"His name might well go down in history as one of those hardy and courageous pioneers, who, in those early days, helped to blaze the Hydro trail in this province through the dense jungle of skepticism and outright opposition."

Committee Reports

Concluding the first session, delegates devoted their attention to the presentation of several committee reports.

The Labor Relations Committee report, submitted by W. B. Elliott, St. Catharines, indicated that District No. 5 had contracted for the services of a firm of consultants. The firm would furnish frequently-revised reports showing wage rates, working conditions and other employee benefits in force among member utilities in the district. The scheme, it was pointed out, was aimed at ensuring that working conditions were fair and equitable, and to assist utility commissioners in making decisions during contract negotiations with employees.

The Committee said that the step by District No. 5 was taken in the full knowledge that the reports would have limited value until and unless all O.M.E.A. district associations joined the plan.

It added that "District No. 5 chose the services of consultants rather than utilize the services of their managers through the A.M.E.U. and of Ontario Hydro, believing these representatives could be much better employed on services in which they were specialists. Such a plan would also eliminate any possibility of obtaining unconsciously weighted reports."

The Committee recommended the appointment of a Labor Relations Committee comprising nine members, divided into three geographical subdivisions to facilitate regular meetings. It was also recommended that this committee be requested, at an early

date, to suggest to the O.M.E.A. Board of Directors some method of obtaining for the municipalities adequate and currently-revised information on wages and working conditions, preferably by joining with District No. 5 in its program.

Insurance Controversy

The delegates approved adoption of this report. In fact, all committee reports were accepted except one —

The report of the Committee on Fire Insurance, read by Chairman A. H. Waites, Mimico, was first challenged by H. O. Hawke, Galt. The report, in referring to proposed co-operative fire insurance coverage for the various utilities, stated that "your committee would like to point out that fire insurance policies have been supplemented in recent years to make for a much broader form of protection at a very reasonable cost." It added that "the disadvantages of adoption of co-operative fire insurance coverage far outweigh any advantages that might be gained by such a plan."

Mr. Hawke asked Mr. Waites to gives some details of "the disadvantages." Mr. Waites replied by calling to the platform another member of the committee, P. R. Locke, of St. Thomas. Mr. Locke said that the principle of co-operative fire insurance was wrong because it contravened the principles of free enterprise. "There is the possibility of saving," he conceded. "But let's stay in the business we know."

Mr. Hawke then returned to the platform. He claimed that a co-operative fire insurance plan would save "millions of dollars over a period of years." He added that several big public organizations carried their own insurance "and they would hardly continue to do so unless there was some advantage."

A show of hands on the motion to adopt the report proved so close that it was decided to hold a formal ballot. Voting in the ballot rejected the motion.

Other committee reports submitted to and approved by the delegates included:

• A recommendation from the Electric Sales Promotion Committee that the Board of Directors petition Ontario Hydro to adopt standards for electric hot water heaters; review the present rate structure for flat-rate heaters, and reconsider the decision of recent years to vacate the field of wholesaling water heaters at cost to municipalities;

• A recommendation from a special investigating committee that a training course or school for utility management in personnel and labor relations be established in conjunction with the Personnel Branch of Ontario Hydro;

• A statement from the Committee on Maximum Cost Reserve Fund that $18,441.27 was expended for the purpose of the fund during 1957, cost relief being allowed to 11 municipalities in the Niagara Division, seven in the Georgian Bay Division, and one in the Eastern Ontario Division; and a recommendation from the same committee that, during 1958, "a survey be made of the methods of allocating cost relief to determine if the present formula is still equitable, in view of changes in power costing since the fund was established;"

• A recommendation from the Comparative Methods Committee that, "since its original intent has led to something better," it be discontinued in 1958; AND

• A statement from the Annexation Committee that its negotiations had proven fruitful to the extent that Ontario Hydro policy had been amended to provide for the transfer of sinking fund equities to the annexing cost municipality, but on a deferred basis. ■

"They are not forgotten"

MEMBERS of the O.M.E.A. paid silent but eloquent tribute to the memory of fellow-members who had passed away since they gathered for their last annual meeting. Concluding his opening address, at this year's convention, President Gordon H. Fuller read the names of the deceased Hydro commissioners while Secretary-Treasurer D. P. Cliff placed a rose on an open Bible as he read each name.

Members of the O.M.E.A. who passed on during 1957-1958 were: James Harris, Kingston, April 19; J. B. Hanmer, Norwich, May 3; J. D. McInnes, Sudbury, May 13; W. J. Robinson, Leamington, May 24; Arlin Avery, Beaverton, June 24; Mayor W. C. Nelson, Sarnia, August 3; James Henderson, Orangeville, November 26; James S. Washburn, Kitchener, December 7; Lincoln S. Quinn, Niagara-on-the-Lake, January 22, 1958; Reeve Alex. McCrae, Point Edward, January 12, 1958; Wilfred J. Abell, Brampton, February 22, 1958; Dr. Thomas H. Hogg (Past Honorary President), Toronto, February 24, 1958. ■



SECRETARY-TREASURER D. P. CLIFF laying roses on an open Bible as the O.M.E.A. honored the memory of deceased colleagues.

the chair WAS soft

W. Ross Strike provides convention delegates with a blueprint for selling electrical service



CROSS-SECTION of the convention audience during a joint O.M.E.A.-A.M.E.U. session.

"In many places and for much too long, we have grown fat and complacent by nursing the idea that we are offering a service and that our customers should be very grateful. No greater fallacy has ever existed. Let there be no mistake and let us bury that myth right here and now. We are not offering a service, we are rather selling a product and we should seek out and treat our customers accordingly."

Such was the theme of a straightforward address by W. Ross Strike, Ontario Hydro's 1st Vice-Chairman, during a joint meeting of O.M.E.A.-A.M.E.U. delegates at this year's annual convention in Toronto.

In concentrating on co-operation between Ontario Hydro and the associated municipal commissions, the base of the triangle that supports the whole entity – the customer – must not be overlooked, the speaker emphasized. He said that the functions of a monopoly are fraught with many dangers and the only salvation in this connection was constant vigilance and persistence of effort. "Over the years," he said, "we have taken refuge in countless rules and regulations, in codes and specifications, that have been designed to meet certain conditions and often to protect the careless user of what, in his hands, is a potentially dangerous product. The effect quite often is that we put our customers in a technical straightjacket."

Potential domestic customers now have a choice of energy that has many applications in a modern residence. Many of these customers are newcomers to the province, and many are young couples setting up a home for the first time. They are all confronted with aggressive and attractive techniques of selling appliances, which use a different form of energy and which put considerable emphasis on special advantages for the customer. Hydro, therefore, has a direct responsibility to these people and to existing customers to give them full information regarding the many advantages of using electric energy.

In this connection, Mr. Strike dealt at length with the co-operative Ontario Hydro-municipal utility "Live Better Electrically" campaign now underway. He pointed out that a regional Commission representative had been, or would be, in the near future, in contact with each local commission. He suggested that much better team-play could be developed between the manufacturers, the appliance dealers, the electrical contractors and the commissions.

Practical Suggestions

For the local commission, he had these practical suggestions: —

1. Take the necessary steps to have the size of the ampere service installed in each home on the record card of each customer. With a little training, the meter reader could get this information.
2. Have one or more members of each utility staff available to talk with and advise customers about the wisdom of increasing the capacity of their house service. The amount of each customer's monthly consumption should give a good starting point.
3. Call in the local electrical contractors and work out with them a tariff of charges that will give your customers a square deal both in good workmanship and reasonable cost.
4. Make it known by advertising and other publicity means that the local utility is prepared to advise its customers about house-power. Stress the necessity of it and the utility's desire to co-operate with the customer in getting full value and enjoyment from electrical service, which would give them the highest form of modern comfort and convenience.
5. Consider very carefully what assistance, if any, the utility is prepared to extend to its customers in financing the cost of increasing their house-power. Work out the mechanics of it and then put it into effect. Some municipalities are already acting or seriously considering acting in this regard by extending credit to the customer for the cost involved, and being repaid at reasonable interest by monthly instalments added to the electric bill.



W. ROSS STRIKE, Hydro's First Vice-Chairman.

Plant Power

On the question of plant power, he pointed out that a great many small plants would welcome occasional visits from the local manager or qualified men on his staff who would be prepared to give sympathetic consideration to problems of the plant, and advice and suggestions as to practices and equipment that would improve the effectiveness of the electrical operation of the plant.

Turning to the subject of water heaters, Mr. Strike expressed the view that adequate attention had not been given to the fact that domestic customers require considerably more hot water than formerly. Consequently this problem must be given immediate attention. Ontario Hydro and the local utilities must give serious consideration to the question of promoting the sale and use of these important electrical appliances.

Mr. Strike pointed out that Ontario Hydro's Research Division had been giving attention to the development of water heaters of higher wattage, that offered the additional advantages of greater capacity and even better construction. Tanks of 30-, 40- and 50-Imperial gallon capacity have been developed with a combination of heating elements designed to produce the best overall hot water output from each tank size. These should successfully compare with heat recovery from any other present source of energy.

"However, in the meantime," he said, "I believe any local commission can purchase higher wattage heaters with interlocked upper and lower elements from manufacturers, and arrange for suitable installations to meet their own local arrangements."

Summing up, Mr. Strike set these objectives:

1. Realize first that we are very definitely selling a product;
2. Determine that we will go out and secure new customers;
3. Make sure that we will at all times establish, cultivate and maintain the respect, confidence and loyalty of all our customers by giving them the best possible service, assistance and information. In this way they may be able to use to their utmost benefit and convenience the product which we sell, and which we proudly proclaim will give every person in the

(Continued on page 31)

A.M.E.U. INAUGURATES "TRAVELLING CIRCUS"

Retiring president and section chairmen review 1957 progress

INAUGURATION of a "travelling circus" will be a major phase of the expanded activities of the A.M.E.U.

That announcement was one of the highlights of an address by retiring President G. R. Davis at the opening session during the recent O.M.E.A.-A.M.E.U. Convention. Under this new plan, the A.M.E.U. Engineering Section was making arrangements for the attendance of specialists in various phases of electrical distribution at A.M.E.U. regional "workshop" sessions during the ensuing year, Mr. Davis said.

The Engineering Section has announced that the first A.M.E.U. Regional "Workshop" (Travelling Circus) will be held at the Kitchener Terminal Building on May 1-2 this year.

"It is much more economical," Mr. Davis pointed out, "to conduct studies through the A.M.E.U. committees than it is for the individual municipalities to try and 'go it alone'."

In citing an example, Mr. Davis pointed out that the A.M.E.U. had a committee making studies of load growth because of the need for forecasts and advance information on future demands. "In my utility we cannot afford the time or the manpower to obtain complete information, and I am certain other utility managers feel the same way. However, this result is being accomplished collectively at a relatively small cost, and with manpower assistance coming from the staff of Ontario Hydro at our request."

Although a slight recession was apparent, this should not be used as an excuse by members to slacken their efforts. Mr. Davis urged that members, as part of a co-operative public utility, plan and prepare for the expansion of their systems in the years ahead.

"At the same time," he said, "we must be most economical as we are always open to criticism, not only by privately-owned utilities but by our own customers. For the first time, many of us will be competing with a privately-owned utility in our own municipalities. This will result in increased costs and decreased revenues for our electrical utilities, and the only solution is more efficient operation if we are to maintain existing rates."

"Even under these conditions," Mr. Davis stated, "it is my opinion that within the next 10 years we shall welcome the additional source of energy for our province."

Reporting on the Association's operations, including gatherings of sub-committees and main committees;



G. R. DAVIS, Kingston
Retiring President of the A.M.E.U.

board and executive meetings, planning conferences, as well as regional and the now famous "Buzz Sessions," the speaker said a total of 183 meetings had been held under A.M.E.U. auspices during the year.

Dealing with work decentralization, he stated that this was still continuing. In the Eastern and East Central Regions of the A.M.E.U., favorable progress had been recorded. Regional associations were also functioning actively in the Niagara, Toronto, West Central, Western, Eastern, and Northeastern districts, while a Georgian Bay group would soon be included.

"One suggestion I might make to the incoming executive," he said, "is that a method be studied for the dissemination of information from time to time. We have thought of issuing to the municipalities a regular bulletin, or taking space in *Ontario Hydro News* for this purpose. This question has yet to be settled, but we are all aware of the value of such a course."

Pointing to the extent of the Association's operations, Mr. Davis said rough calculations indicated that, as a group, A.M.E.U. members were responsible for serving about 1,100,000 electrical customers, or approximately one third of the families in Canada, during 1957. The growth rate appeared to be between 35,000 to 40,000 customers a year.

Stating that 50 municipalities had professional engineers on their staffs, Mr. Davis expressed concern that university engineering graduates were not seeking employment in the utility field. "We are in big business, gentlemen," he declared, "and we certainly have the opportunities, and can offer them an interesting and useful career. This also applies to students graduating in commerce or certified accountancy, and I believe the Employee Relations Committee would be well advised to make a further study of this problem. If it is because the salaries we are offering to these young men are not competitive with private business, or if there are other reasons, then it is our responsibility to advise our own commissioners and the O.M.E.A."

Mr. Davis suggested there were other problems requiring consideration and action and asked: "What are we going to do about engineering education, employee education, wages, strikes, insurance, regional conferences and many other matters that we all have in mind?"

Discussing wages, Mr. Davis said it was apparent that they had reached a maximum when they exceeded the wage level in the communities concerned, and suggested that wages were now dangerously near that level. "Should we," he asked, "bring to the attention of our customers and our commissioners the dangerous situations that can arise if a community is deprived of its electrical supply? Residences, hospitals, institutions of all kinds, industries and even our water supply would be affected. Do we all agree that power for any purpose should be provided at a reasonable cost?"

Pausing only briefly while delegates expressed their approval by warm applause for his comprehensive and interesting report, Mr. Davis called upon Secretary W. R. Mathieson to present the minutes and the auditors' report for 1957 for approval.

217 Members

Mr. Mathieson also reported that, as of February 28, 1958, 217 municipalities had paid their A.M.E.U. membership dues.

Other reports presented during the convention's opening session included one by James W. Hammond, Hamilton, Chairman of the Finance and Office Administration Section, who said that during two meetings held at Ontario Hydro's Head Office, exhaustive studies had been made, in conjunction with members of the Commission staff, of the proposed revision of the "Uniform Accounting for Municipal Electrical Utilities" handbook. As a result the Section had been able to recommend to the general executive that they approve the adoption of the proposed revisions.

"A further result of this Section's deliberations," said Mr. Hammond, "was a resolution to amend the Bankruptcy and Bulk Sales Act. This was approved by your general executive, as was the request for the preparation of a suitable brief to accompany the resolution for action by the O.M.E.A."

F. G. York, dealing with the General Administration Section, told delegates that this group was divided into six committees, which investigate separate avenues of interest, but come together for discussion during general meetings.

Of the Accident Prevention Committee, with Ronald Harrison, Scar-

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J. W. HAMMOND
Hamilton



J. A. WILLIAMSON
Niagara Falls



borough Township, as Chairman, he said that it had a very active year, and that talks had been given at each district A.M.E.U. and O.M.E.A. meeting. This committee had proposed that accident prevention and health promotion be handled by a special committee in each A.M.E.U. regional organization.

The question of wages arose again in connection with the Employee Relations Committee under the joint Chairmanship of N. A. Grandfield, Brantford, and H. A. Howard, Thorold. This body had produced a number of tabulations of wage and fringe benefits, which had proved of great assistance during contract negotiations.

External Regulations

One of the most urgent problems investigated by the External Regulations Committee under the chairmanship of D. N. Durward, Galt, concerned the new Highway Improvement Act passed by the Ontario Legislature in August, 1957. There appeared to be considerable conflict between the provisions of this Act and those of the Power Commission and Public Utilities Acts, and further study was being given to the problem.

The operations of the Pension and Insurance and the Public Relations Committees were briefly outlined, while Mr. York also reported that the Rates Committee was giving thorough consideration to the question of space heating, and to the possible extension of the use of electricity for this service.

Dealing with the Engineering Section, Chairman Harry Hyde reported that it had a very active year, having successfully carried on an educational program, which helped in the development of the members of the various committees and subcommittees, and of all members of the A.M.E.U., who had participated in the various meetings.

The "Workshop on Distribution Practices" held in October last year, with 300 members attending, indicated that one conference should not encompass a wide variety of topics. Mr. Hyde suggested, as an alternative, that a number of conferences covering various types of problems be inaugurated. He pointed out that the Engineering Section had thoroughly studied this problem, and had made tentative plans to put this plan into effect.

Discussing the Communications Committee under Chairman Samuel Murchie, Mr. Hyde said the most important matter brought before it during the year concerned proposed changes in Specifications 106 and 107 regarding channel splitting. "This Committee is confident," he declared, "that without the prompt action of the A.M.E.U., much valuable radio equipment now being used by utilities would have been rendered obsolete."

Discussing the progress of the Load Study Committee, Mr. Hyde said that Ontario Hydro had authorized $150,000 for the purchase of metering equipment for use in conducting studies of customers' loads. A Trusteeship Committee, with representation from the O.M.E.A., A.M.E.U. and Ontario Hydro to administer the purchase and use of such equipment, had also been established. This committee included: G. H. Fuller and Bert. Merson, O.M.E.A.; Harry Hyde and J. E. Teckoe, A.M.E.U., with Adam Smith and I. K. Sitzer (Chairman), representing Ontario Hydro.

Other operations dealt with in Mr. Hyde's interesting report related to the activities of: the Overhead, Standards and Engineering Liaison, Street Lighting, Substation, System Planning, Underground, Utilization Equipment and Metering Committees.

Operation Section Report

In reviewing the activities of the Association's Operation Section, J. A. Williamson, Niagara Falls, noted that a "regional constitution" had been prepared and approved by the A.M.E.U. executive for use by all regional organizations. He pointed out that an understanding existed whereby minor adjustments to suit local requirements might be incorporated after approval of the executive board of the parent association.

As Chairman of the Convention Committee, Mr. Williamson remarked that this year's program had been revised — a change he hoped the delegates would assess as the convention progressed. He reported that preliminary arrangements for the 1958 Summer Technical Conference



F. G. YORK, Ottawa



M. K. RUKAVINA
Kapuskasing



D. M. SEATH
Ingersoll

were underway, and that it would be held this year from June 5 to 7 in Hamilton. Work of other committees reviewed by Mr. Williamson included: Finance, S. R. Walkinshaw, Chairman; Publications, H. W. Little; Membership, E. A. Vigars; Program, Ray Pfaff, and Nominating, E. A. Washburn.

The success of decentralization of A.M.E.U. activities by the formation of A.M.E.U. associations throughout the province was manifested in the reports of both the long-established and newly-organized regional groups.

The Northeastern Region, which includes municipalities from Hearst in the north to Sault Ste. Marie in the south — a distance of 660 miles — held its inaugural meeting at North Bay, May 10, 1957. Others have since been held at Sturgeon Falls and Capreol. It is intended that two meetings shall be held annually in the future at various points in the region.

In presenting his report, President M. K. Rukavina, Kapuskasing, said, "It has been a long-felt need to form an association in this northern part of the province, linking municipalities with common problems and interests. We shall grow stronger with every meeting, and we feel that we shall be of assistance to the A.M.E.U. generally, in gathering data on cold weather operating conditions."

The inaugural meeting of the East Central and Eastern A.M.E.U. Association was also held in May, 1957, at Brockville. Of a possible total of 57 municipalities, 36 were represented on this occasion, and it was decided that the one association would serve both regions — at least for the present. Vice-President J. H. Page, Trenton, reporting in the absence of President Clare Campbell, invited all interested delegates to attend the first regular meeting of the association, which will be held at Brockville, May 7 and 8. He said the agenda would include a talk on the subject of natural gas competition and a tour of the St. Lawrence Power Project.

Western Region

The recently-organized A.M.E.U. groups in the Western Region reported an active year with meetings being held in the two designated sections. The Western Section met twice in Chatham, while the Eastern Section held spring and fall meetings in London. According to the report presented by D. M. Seath, Ingersoll, the meetings were well attended and proved informative. He promised that, with a year of organized activity behind it, the Western Region would provide increased support to the parent body, and speak with a louder voice in A.M.E.U. affairs.

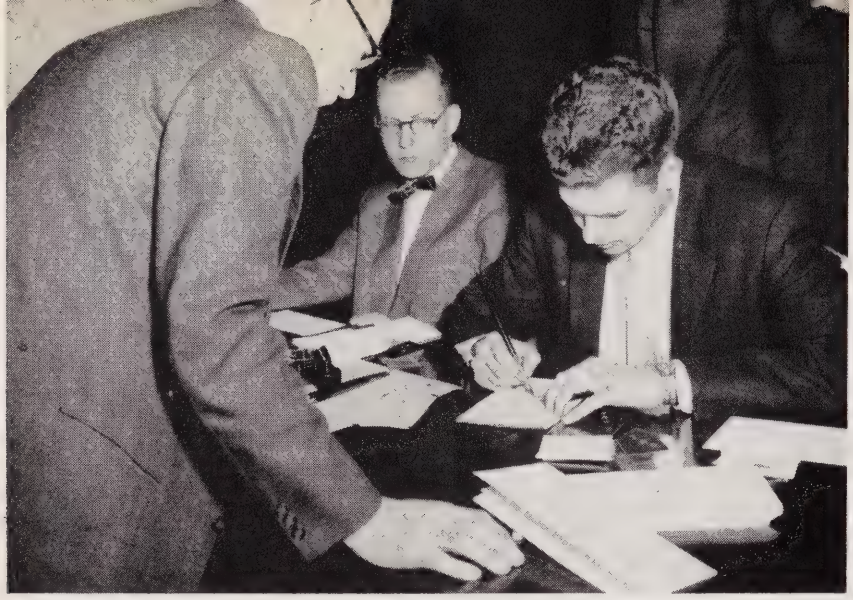
The Toronto A.M.E.U. Region, which was formed 10 years ago, followed its regular plan of operation in 1957, holding four business meetings and four informative technical sessions. In recounting the year's highlights, President E. J. Woelfle, Toronto, reported that the members had visited the Toronto Township Commission to witness "on-the-job" spinning of secondary distribution lines on concrete poles, and also the Etobicoke Commission where destruction tests were being carried out on certain types of sectional steel poles.

President William Secord, Brantford, reporting for the West Central Region, said that the two general meetings, held last year at Guelph and Port Dover, followed the customary pattern, consisting of a general business session, a paper by an authority on some technical subject, and a panel discussion. He said that the 1958 spring meeting would be held at Kitchener.

While no A.M.E.U. group had been formed in the Georgian Bay Region, District Director W. G. Lane told the meeting that considerable "spade work" had already been done, and an organization meeting was tentatively planned for the immediate future.

A notice of motion pertaining to an amendment to the A.M.E.U. constitution was introduced by E. A. Washburn, Past President, extending Section 9, paragraph (c) to include the sentence "The President shall be a voting member of all committees."

Concluding the initial A.M.E.U. session was the presentation by Mr. Washburn to retiring President G. R. Davis, of an attractive painting by the well-known Canadian artist, Manly MacDonald, accompanied by a scroll bearing an expression of gratitude "for his highly efficient leadership and for the way the affairs of his office have been conducted. His judgment and sound administrative policies have added immeasurably to the progress and prestige of our Association." ■



ARRIVING from Delaware, Ont., Frank E. Mahler (standing) visits the registration "printing plant", operated by two Ontario Hydro representatives, Gordon Birkenfeld (left) and Norman Christian, to get his lapel badge.

ONTARIO HYDRO'S "Live Better Electrically" display material, prepared for use in the co-operative educational program, attracted delegates during recess periods. Here four municipal utility representatives, (left to right): David Rolston and Reg. Tufford, Strathroy, with W. E. Robbins and W. G. Boyes, Alliston, examine a wall banner.





REPRESENTING Ontario's "newest" village were these delegates from Iroquois, one of the St. Lawrence Valley communities relocated by Ontario Hydro. H. A. Gilmer (left) looks on as Garnet Loucks adjusts the lapel badge for Milburn Hyslop in the centre.

1958 O.M.E.A.-A.M.E.U. CONVENTION IMPRE



THIS GRAND PIANO served as a base of operations during the O.M.E.A. presidential election contest. Scrutineers (left to right): Mayor Harold Prescott, Capreol; L. L. Coulter, Ottawa; H. M. Scheifele, Waterloo, and Mayor J. L. Skillen, Dryden, are counting ballots.

DELEGATES register keen interest in one of the enthusiastic debates that featured the well-attended O.M.E.A. "resolutions sessions."





LONG AFTER other delegates had left the convention hall, Thomas Barnes, Niagara Falls (left), was noted stressing a point during a chat with Charles S. Phelps, Sarnia delegate.

NOTING a striking facial resemblance in two delegates, the photographer recorded this study of J. D. Phillips, Schreiber (left), and M. J. McHenry, former Director of Hydro's Consumer Service Division.



IONS

APRIL, 1958

HOW TO WIN FRIENDS.. AND INFLUENCE REVENUE

A.M.E.U. management session panel turns the spotlight on public relations and their importance in utility operations



F. G. YORK
General Manager
Ottawa Hydro-Electric Commission

THE importance of good relations with the public was a major topic of discussion at the recent O.M.E.A.-A.M.E.U. Convention. An A.M.E.U. "management-session," with F. G. York, General Manager, Ottawa Hydro-Electric Commission, as Chairman, and attended by a large representation of O.M.E.A. delegates, featured three speakers on the subject. Here are some of their most quotable "quotes":

W. J. WYLIE, Director of Consumers Service, Toronto Hydro-Electric System, said . . .

"The service given, whether it is good or bad, forms the public relations with respect to any business organization . . ."

"Electrical utilities are, to some extent, unique in that the commodity we sell is intangible. This makes it necessary for us to have more intimate and continuous dealings with the purchasers of our product than is the case in respect to those who deal in other products. This necessarily close association with our consumers may often result in our becoming complacent about the need to be alert to the impressions we are making . . ."

"To have good public relations it is necessary to do things for our consumers, which they recognize are more than the minimum requirements, and which impress them favorably as being the outcome of genuine interest in them as consumers. Another factor, which we tend to overlook at times, is that Hydro consumers are the owners of the business we are in; that we are working for them and they have, therefore, the right to expect that we are always considerate of their interests . . ."

"The old adage 'Actions speak louder than words' is still fundamental in the creation of goodwill towards a business. Advertising, no matter how extensive or well prepared, will not be effective if the right kind of action is lacking to back it up . . ."

"It is necessary to endeavor to put ourselves in the position of the consumer or prospective consumer in order to assess the importance of some of the things which, to us, may seem insignificant, but which can upset the public in their relations with us . . ."

Service Problems

"The utility might ask itself questions about its way of doing things . . . (such as) . . . How easy is it for a consumer to make arrangements for a new service? . . . What effort is made to restore service quickly when service fuses interrupt the supply of energy? . . . What provision is made to deal with general interruptions when consumers know that it is not the service that is affected, but some of the utility's equipment? Has thought been given to the handling of the flood of telephone calls to the utility, which will inevitably result under these circumstances? . . . What arrangements are set up for the handling of complaints about matters of billing and requests for information on service matters? . . . What does the utility do about the repair of consumers' appliances? . . ."

". . . improvement in public relations and the giving of good service will, in the end, always result in more electric energy being used and in retaining load which we now have . . ."

F. S. WILKINSON, Business Manager, London Public Utilities Commission, told how "in London, during the past year or so, we have called by telephone in the neighborhood of 8,000 flat rate water heater customers . . ." He also said . . .

"Gas competition has been keen for



W. J. WYLIE
Director of Consumers Service
Toronto Hydro



FRANK WILKINSON
Business Manager
London P.U.C.



D. N. DURWARD
General Manager
Galt P.U.C.

the past three or four years, and it will continue, only on a more aggressive scale, in the months and years to come . . . we must do something about it, if only to retain our present water heater load . . ."

"Telephone interviews save time and expense. Most housewives will answer the telephone . . . A door-to-door canvass is not entirely satisfactory. Many doors will remain closed, especially if the lady of the house gets the first glimpse. She may take it for granted that the caller is a salesman . . ."

"The telephone interview gave us not only the opportunity of discussing water heaters, but also the chance to talk to customers about the operation of their electric ranges, washing machines, refrigerators, and so on . . ."

Cost and the Customer

"In a number of cases, the customer will suggest her electric bills are excessive . . . Our telephone interviewer has before him the consumer's water card, with a complete record of both Hydro and water consumption. He also has a small pamphlet showing the average weekly cost of each appliance. After a brief run-down of the different appliances in the home, together with operating costs, the customer invariably realizes her two-month Hydro bill is really not excessive but quite reasonable . . ."

D. N. DURWARD, General Manager, Galt Public Utilities Commission, was the final speaker under the heading of "Service is Public Relations." His remarks included . . .

"Any attempt to embark on a consumer or public relations program must start among the employees of our own utility. Our employees, whether they be meter readers making calls to customers' homes or laborers working in trenches, represent our management and the way we operate . . ."

"Your employee must be an asset, eager, approachable, helpful and respected in the community, and one who does not drop his service attitude at five o'clock, but takes seriously his responsibilities in dispensing vital services . . ."

Primary Duty

"We who distribute electricity through this co-operative enterprise must, through research and development, be ready, willing and able to serve the public with any new device or by any method using electric service. This is our primary duty . . ."

"How can we, in our municipalities, continue to enjoy good customer relations? Or, if these have become neglected over the years, how can we regain the respect our position in the community demands? . . . Do reporters attend commission meetings? Are outages or unusual occurrences completely reported within a reasonable time? Do you make arrangements to show off new equipment? Does your chairman report to the people or give policy statements? . . ."

"Collections and customer relations go hand in hand in our business of public service. Without good relations, our collection record would become very poor indeed. If your prospective customer is received courteously, given as much information as possible about your business, the background, operating system, billing details and method of payment and collections, he is much more likely to be a prompt-paying booster than a disgruntled, problematic and unsatisfactory consumer . . ." ■

O.M.E.A.-A.M.E.U. MEMBERS

NAME 1958 OFFICERS

In a spirited but friendly three-way contest at this year's 49th annual meeting, O.M.E.A. delegates elected Bert Merson, Chairman, Toronto Electric Commissioners, to the Presidency. A.M.E.U. members this year named a prominent and active member of their organization, J. A. Williamson, P. Eng., General Manager, Niagara Falls Hydro-Electric Commission, to serve as President for the ensuing year.

Indicative of the keen interest in the O.M.E.A. Presidency was the nomination of two other candidates, William B. Elliott, St. Catharines, and Frank Dennie Jr., Mayor of Webbwood. Voting was by ballot with Mayor Harold Prescott, Capreol; Howard M. Scheifele, Waterloo; L. L. Coulter, Ottawa, and Mayor J. L. Skillen, Dryden, acting as scrutineers.

Mr. Merson's election to the Presidency of the O.M.E.A., succeeding Gordon H. Fuller, culminates a long period of participation in O.M.E.A. affairs. Born in England he came to Toronto in 1907, joining the Toronto Street Railway Co. as a conductor in 1911. Mr. Merson subsequently served on the executive of the Employees' Union for four years, prior to an 8-year term as its President.

During this period he was also President of the AFL-TLC Toronto, and the District Trades and Labour Council, and for four years was Vice-President of the Trades and Labour Congress of Canada. In the latter capacity he took part in the 1926



THOMAS J. MOFFAT, Listowel (left), who nominated Mr. Merson for the O.M.E.A. Presidency had the honor of presenting him with the gavel, symbolic of his new office.



EXPRESSING appreciation of his services during the past year, Immediate Past President E. A. Washburn, Stratford (right), presented an oil painting to retiring President G. R. Davis on behalf of the A.M.E.U.



MEMBERS of the new A.M.E.U. executive. Seated left to right are: Ronald Harrison, Scarborough Township; Immediate Past President G. R. Davis, Kingston; President J. A. Williamson, Niagara Falls; Ray Pfaff, St. Catharines; Harry Hyde, Toronto; first row standing — W. H. Powell, Peterborough; E. A. Vigars, Port Arthur; F. G. York, Ottawa; E. L. Burnham, Belleville; A. G. Stacey, Guelph; C. W. King, Dresden; H. W. Little, Brockville; second row, standing — W. R. Mathieson, Secretary-Treasurer, Toronto; N. H. MacKinnon, Sudbury; John Torrance, Etobicoke Township; Douglas M. Seath, Ingersoll; Stewart Holt, Midland, and Harold E. Brownhill, Stamford Township.

Geneva Conference of the International Labour Organization. Joining the Treasury Department of the City of Toronto in 1928 he was appointed Secretary of the Toronto Old Age Pensions Board a year later and served for 14 years. Early in World War II he was loaned to the Wartime Prices and Trade Board as Secretary for the Toronto Area Rationing Branch. In 1946, Mr. Merson was appointed a Toronto Electric Commissioner, and in 1953 was named Chairman.

During the past 12 years he has taken an active interest in O.M.E.A. affairs, and has been President of O.M.E.A. District No. 4, and an Executive Vice-President of the O.M.E.A. He is also the Secretary of the Municipal Hydro-Electric Pension and Insurance Committee.

James S. Duncan, Chairman of Ontario Hydro, was again named Honorary President of the O.M.E.A., and Honorary Vice-Presidents are: K. A. Christie, Q.C., Toronto; M. J. Elliott, Bowmanville; C. J. Halliday, Chesley; H. O. Hawke, Galt; G. F. Hutcheson, Huntsville; W. Ross Strike, Q.C., First Vice-Chairman of Ontario Hydro, Bowmanville.

The convention again named D. P. Cliff, Ontario Hydro Commissioner, as Secretary-Treasurer.

District Vice-Presidents named: District 1: Dr. R. A. Patterson, Chairman, Kemptville Hydro-Electric Commission; District 2: Lt.-Col. A. A. Kennedy, Commissioner, Ontario Hydro, and Chairman of Owen Sound Public Utilities Commission; District 3: J. L. Skillen, Mayor of Dryden and Commissioner, Dryden Hydro-Electric Commission; District 4: Dr. V. S. Wilson, Chairman, Etobicoke Township Hydro-Electric Commission; District 5: C. R. Buss, P. Eng., Chairman, Thorold Public Utilities Commission; District 6: G. H. Glover, Commissioner, St. Mary's Public Utilities Commission; District 7: H. R. Henderson, Commissioner, Woodstock Public Utilities Commission; District 8: Roy Warwick, Commissioner, Blenheim Public Utilities Commission.

Elected District Directors were: District 1: H. S. Graham, Newcastle, and L. L. Coulter, Ottawa; District 2: A. T. Smith, North Bay, and J. M. Low, Uxbridge; District 3: R. B. Chandler, Port Arthur, and W. A. Ferguson, Atikokan; District 4: A. H. Waites, Mimico, and J. T. Armstrong, Georgetown; District 5: F. R. Kaupp, Merritton, and Roy Pierson, Cainsville; District 6: H. M. Scheifele, Waterloo, and T. J. Moffat, Listowel; District 7: P. R. Locke, St. Thomas, and G. E. Brown, Aylmer; District 8: T. A. Cada, Tecumseh, and T. C. Odette, Tilbury.

A.M.E.U. Officers

Mr. Williamson succeeds G. R. Davis, P. Eng., General Manager, Kingston Public Utilities Commission, as A.M.E.U. President.

(Continued on page 31)



PRIOR to the final session at this year's convention, members of the new O.M.E.A. executive posed for the photographer. The group includes (seated left to right): C. R. Buss, Thorold; Dr. V. S. Wilson, Etobicoke Township; D. P. Cliff, Dundas, Secretary-Treasurer; President Bert Merson, Toronto; Past President Gordon H. Fuller, Windsor; H. M. Scheifele, Waterloo; T. A. Cada, St. Clair Beach; standing — Mayor J. L. Skillen, Dryden; L. L. Coulter, Ottawa; Roy Pierson, Brantford Township; Roy Warwick, Blenheim; Lt.-Col. A. A. Kennedy, Owen Sound; A. H. Waites, Mimico; R. B. Chandler, Port Arthur; Mayor J. T. Armstrong, Georgetown, and H. S. Graham, Newcastle.

ALL THOSE IN FAVOR . . .



BERT MERSON
Toronto
Chairman of the O.M.E.A.
Resolutions Committee.

WHEREAS the resolutions brought forward at the annual meeting of the O.M.E.A. may be said to crystallize the thinking of the various district associations on matters of vital concern to the well-being of the electrical supply industry in the province, and

WHEREAS they often represent painstaking work and investigation on the part of the various committees and sub-committees, and

WHEREAS a considerable amount of spirited controversy is usually generated during the course of their presentation,

THEREFORE let us describe something of the 20 resolutions dealt with by O.M.E.A. delegates at this year's convention in Toronto:

Presented under the capable guidance of Bert Merson, Chairman of the Resolutions Committee and President-elect of the O.M.E.A., the resolutions ranged in subject matter from office record obsolescence to rate discounts for municipally-owned ball parks. Judged by the yardstick of delegate participation and length of discussion, the resolution relating to the cost of power, submitted by District No. 5, took a prominent place on the agenda.

In its original form, this resolution requested Ontario Hydro to "re-examine the basis for the costing of power", and to "return to the basic principles enunciated in the contracts" between the Commission and the municipalities. It contended that simplified accounting procedures could be developed, which would provide an equitable distribution of costs, "including elimination of many disparities, which have existed and do exist in previously- and presently-used practices." The resolution further urged that committees of the O.M.E.A. and A.M.E.U. be established to work jointly with the Commission to study the entire question of the costing of power."

Mr. Merson pointed out that a joint O.M.E.A.-A.M.E.U. "Low Tension Pooling" Committee had been formed as the result of a resolution brought forward at the 1957 convention, and that it had tabled a reasonable progress report, deferring definite decisions and recommendations on the policy of low tension pooling, pending further investigation. In the light of this, he said, the Resolutions Committee recommended that the scope of this standing committee be extended so that it could work jointly with Ontario Hydro to study the

entire question of the costing of power.

Enlarge Committee

After considerable discussion, the meeting finally accepted the Resolution Committee's suggestion on the understanding that the O.M.E.A. committee would be enlarged by the addition of two members, and that the A.M.E.U. would be invited to increase its representation by a similar number. The joint committee would be expected to present a detailed report of its findings to the delegates at next year's convention. This proposal won almost unanimous approval after several examples of disparities in low tension line costs had been cited by various delegates and a succession of speakers from the floor had expressed widely-divergent opinions.

The report of the Low Tension Pooling Committee, presented by Chairman John T. Barnes prior to the vote on resolutions, termed the pooling of transmission costs "a normal step in power costing — the result of system growth and the building of new sources of power generation." Mr. Barnes pointed out that Ontario Hydro had already achieved the pooling of generation costs and the costs of 230,000-volt and 115,000-volt transmission, but he said there were many obstacles still to be overcome before the present rate structure could be changed to establish "equal or uniform rates" to all municipalities.

Chief among these, according to Mr. Barnes' report, was "the extent to which an increase in rates would be acceptable to municipalities, which now enjoy a below-average rate, brought about, in the main, by the ownership of their low tension distribution lines." He said there were approximately 17 municipalities in this position, and he cited load factor, high tension step-down, low tension step-down, frequency standardization and direct and shared costs of regional services as some of the problems his committee would have to consider.

A number of other resolutions approved at the meeting, some with minor revisions, dealt with the general question of rates and charges. The introduction of the new four-block domestic rate structure in any municipality provided an opportune time for any necessary changes in the classification of customers, Toronto Township Hydro-Electric Commission contended. Having recently adopted the new rate structure, this utility requested that the basis and conditions of customer classification be adequately defined, and incorporated in the Standard Interpretation of Rates to ensure uniform procedure throughout the province.

25 Per Cent Discount

A resolution submitted by the Grand Valley Municipal Electric Association, designed to assist municipally-owned ball parks, arenas, swimming pools, bowling greens and tennis courts, was endorsed unanimously. This resolution recommended that the A.M.E.U. be requested to add an amendment to Clause 35 of the Standard Interpretation of Rates, which would provide for "a 25 per cent discount from the lighting bill of such community enterprises for any month in which the service is used only during off-peak periods."

Power contracts between Ontario Hydro and its direct industrial customers formed the basis of a resolution introduced by District No. 8 and approved without opposition. This resolution requested Ontario Hydro, when negotiating future contracts with direct customers, to keep power rates

(Continued on page 24)

O.M.E.A.-A.M.E.U. DELEGATES AWAIT THE COMMENCEMENT OF A SESSION.





NORMAN MAUGHAN
East York Township

in close balance with other industries in the area concerned, "particularly with those industries within the boundaries of an adjacent municipality, especially so in the case or cases where annexation of these direct customers could be considered a possibility."

The following resolution, proposed by District No. 7, also received assent:

"Resolved that The Hydro-Electric Power Commission of Ontario be asked to issue a statement to the O.M.E.A. giving its view on the desirable size of the 'Stabilization of Rates Reserve Fund', and whether any reduction in the assessment for this purpose against the municipalities is contemplated."

Reflecting determination on the part of the O.M.E.A. to conduct its affairs with a minimum of legislative support and special privileges, its members defeated two resolutions bearing on questions of this nature. The first, from District No. 4, resolved "That in the interests of public safety, all Hydro public utilities be declared essential industries, and that the Ontario Department of Labor be empowered, if requested by a utility, to declare a no-strike or lock-out in the case of an unsettled union dispute, and further, that the no-strike or lock-out shall continue until a satisfactory settlement has been arranged through arbitration, if necessary."

The Resolutions Committee, while in agreement that Hydro is an essential operation, and that strikes arising within it could create definite hardship and hazard, nevertheless recommended non-approval on the grounds that "the right to strike is a fundamental and constitutional right of our citizens and the committee felt this association could not interfere with these rights." It was pointed out in support of the resolution, that it did not restrict local autonomy, and would only come into effect when the life of the community was endangered.

The second resolution in this cate-

MAYOR ARMOUR McCRAE, WELLAND (AT THE MICROPHONE), DEBATES A POINT DURING THE RESOLUTIONS SESSION.



gory was proposed by the Executive Committee of the A.M.E.U. It requested the O.M.E.A. to approach the proper authorities with a view to having legislative amendments enacted "in order that publicly-owned electrical utilities shall be granted a preferred status in the listing of outstanding claims under the Bankruptcy Act and the Bulk Sales Act." Non-concurrence was recommended in this case by the Resolutions Committee because "public ownership should not have too many rights and privileges."

District No. 5 presented a resolution urging that all members of a municipal commission, except the elected representative of the municipality, be elected rather than appointed. This was defeated since it was felt that the governing act was permissive rather than mandatory and, under its terms, only the municipal council itself could request that the commissioners be appointed rather than elected.

Delegates also defeated a resolution after doubt had been expressed regarding its accuracy. This resolution proposed that the O.M.E.A. and A.M.E.U. go on record "as being opposed to the recent policy of The Hydro-Electric Power Commission of Ontario purchasing large quantities of machinery and equipment outside our own country when such material is available here, thus depriving our own people of badly-needed jobs."

Other resolutions approved at the convention included one from District No. 4, asking that the Ontario Association of Mayors and Reeves, the Ontario Municipal Association and the O.M.E.A. be requested to make every effort to have the province absorb the entire labor and material costs involved in relocating municipal utilities because of the construction or remodelling of through and non-access highways and all widening over the original two lanes. The resolution argued that these works were designed to serve traffic originating and terminating outside the local areas.

Lighting Displays

In the interests of safety and improved public relations, District No. 6 urged that approval be sought from Ontario Hydro whereby the cost of labor involved in erecting and dismantling special lighting displays might be classed as a public relations expense and be borne by the utility, providing the municipal council or customer paid the capital cost of such displays and the cost of the energy consumed.

District No. 5 asked the O.M.E.A. "to approach the Ontario Department of Municipal Affairs to obtain such legislation as will permit the destruction of obsolete records within a reasonable time and that the A.M.E.U. be requested to recommend a destruction schedule." This association also urged that "as the Labour Relations Act affects electrical municipalities, the certification of a bargaining unit of employees should be based on the result of a secret ballot, and that such ballots be ordered only on a presentation of a sufficient number of membership cards."

Two further resolutions submitted by District No. 5 requested, first, that the O.M.E.A. make representations to the Canadian government to permit paid commissioners to deduct one-third of this remuneration as an office expense for income tax purposes, a privilege enjoyed by other municipal representatives. The second resolution urged revision of the Municipal Act "to permit the election of hydro-electric and public utilities commissioners for a four-year term, with one half of the commission being elected every second year, when so requested by a municipal council."

Turning their attention to the co-operative "Live Better Electrically" campaign, delegates formally approved the basic program. This resolution also recommended that the local municipalities extend all possible assistance to Ontario Hydro representatives concerned with carrying out this program.

New District Association

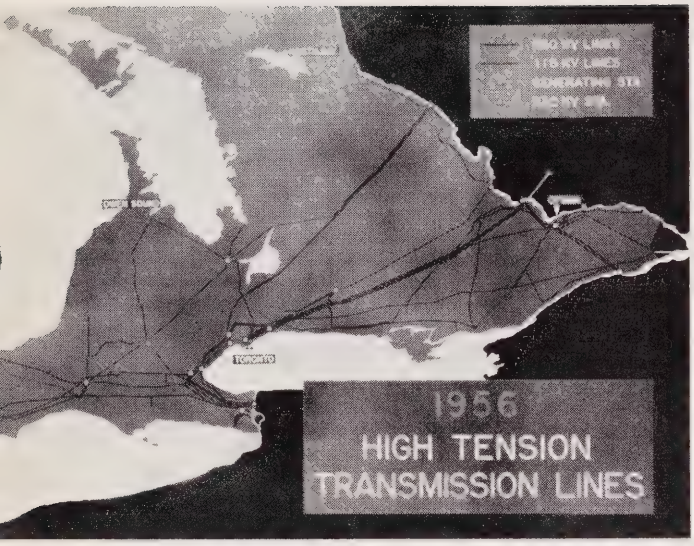
Mounting interest in O.M.E.A. affairs by the more northerly associated Hydro municipalities was manifested in a resolution presented from the floor. Proposed by Mayor Harold Prescott, Chairman of the Capreol Hydro-Electric Commission, it requested the O.M.E.A. to appoint a committee to study the feasibility of establishing a ninth O.M.E.A. district association, comprising all Hydro municipalities within Ontario Hydro's Northeastern Region. At the present time, these municipalities are included in the Georgian Bay District. (Approved.)

Resolutions of appreciation from the O.M.E.A. Board of Directors were tendered to: James Blay, Director of Information, Ontario Hydro, and W. R. Mathieson, Secretary of the A.M.E.U. and their staffs, for "untiring efforts and praiseworthy assistance in making possible another successful annual meeting of our association: to the Editor of *Ontario Hydro News* and his staff for "the pleasant and painstaking manner in which they prepare the pictorial and editorial coverage of our annual meetings"; to the press and to the management and staff of the Royal York and other Toronto hotels. ■

J. T. BARNES
Sarnia



POWER-COST PRINCIPLES



THIS 1956 MAP of the high tension transmission network in the Southern Ontario System illustrates one of the reasons for the introduction of the functional method of power-costing.

Hydro's Director of Accounting, K. C. Coleman, discusses Commission's costing methods, past and present, during address to O.M.E.A. delegates

Costs related to operating plant, such as operation, maintenance, administration expense and fixed charges, are responsible for the greater part of the cost of power, K. C. Coleman, Director of Accounting, Ontario Hydro, told delegates at the recent O.M.E.A.-A.M.E.U. Convention, in presenting an illustrated paper on "Costing Methods, Past and Present."

Tracing the evolution of Ontario Hydro's present "power-costing" system, he told his interested audience that the same kinds of physical plant had always generated and delivered power, and the same costs had always existed. Until 1951, these costs had been allocated according to the traditional method of costing, whereas since 1951 Ontario Hydro had followed the functional method. The traditional method of costing was based upon a very sound principle, i.e., that the costs of a facility would be divided among the customers who received the benefits from that facility.

"As interconnecting and back-up lines were built," Mr. Coleman went on, "and more sources of supply were introduced, it became more difficult to determine where the power was coming from. Assumptions about the direction of the flow of power had to be made that might be contradicted by other assumptions equally valid. The workability of the traditional system depended upon the existence of a simple, straightforward line of power-flow from a generating station to the ultimate customer."

Until about 1925, customers were served over a comparatively simple network of lines. In the 1920's, a loop of lines extending westward from Dundas to St. Mary's and London was pooled, and costs were shared by all customers fed from stations on the loop. In 1939 a pooling, known as the "Niagara-Gatineau Bus," was established, whereby the cost of the 230,000-volt lines from the Ottawa River and Quebec sources was shared at a uniform rate by customers in the Niagara Division. In 1943 all the sources of generation within the Southern Ontario System were pooled, and were charged equitably against all customers in the system. However, said Mr. Coleman, there were still no basic changes in the method of costing.

Functional Method

The "mushroom" growth of the system after 1945 necessitated studies of costing methods, which were carried out by Ontario Hydro engineers and accountants and by the Commission's consultants during 1948 and later years. After consultation with representatives of both the O.M.E.A. and the A.M.E.U., the Commission introduced the functional method in 1951. It embodied a number of new principles that remain today. The most radical of these was the concept of pooling costs by functions, e.g., power supply, bulk transmission, and high-tension transmission. Poolings of cost, such as "amalgamated costs" and the "Niagara-Gatineau

bus," were translated into "power supply" and "bulk transmission" respectively. High-tension step-down costs were pooled within a division. Transmission and distribution costs were related to air-line mileage, and measured from an assumed source of power. Broad assumptions were made about the flow of power. In the Niagara Division, power was presumed to come from the Niagara-Leaside arc. In the Eastern Ontario Division, the sources were Chats Falls, Ottawa, or Masson in Quebec. In the Georgian Bay Division the small generating plants were designated. For the first time, it was recognized that the Georgian Bay Division should bear part of the cost of bringing power from eastern sources, at least to the extent that its own generation was insufficient to meet its demands for power.

In discussing the application of these power-cost principles, Mr. Coleman cited the example of the Sir Adam Beck-Niagara Generating Station No. 2. Costs relating to that source of power included operation and maintenance, administration in the field, Head Office administration, water rentals, taxes, interest, depreciation, and sinking fund. These items were combined into the total cost of generation at that particular station. Likewise similar costs at all generating stations in southern Ontario were combined to provide the entire cost of all generation within the system. Then, in turn, similar groupings of costs were made for the 230,000-volt lines, the 115,000-volt lines, the 230,000-volt stations, the 115,000-volt stations, the low tension lines, and the low tension stations.

According to the functions performed by the properties, costs by classes of property were translated into costs by function. For example, by this method, the cost of generating stations became the cost of the function of power supply. Similarly the cost of 230,000-volt lines and stations was included in bulk transmission, while 115,000-volt stations were considered as high tension stepdown.

These functions of cost, Mr. Coleman continued, were divided equitably among the different classes of customers. This was done in another dividing and gathering process. For example, power supply was divided into two parts — 50 per cent to be allocated on a basis of kilowatt-hours (to reflect the cost of producing additional kilowatt-hours) and 50 per cent to be allocated on the basis of demand.

Bulk and high tension transmission costs were divided on a demand basis among all the customers of the system, while high tension stepdown was allocated on demand to all customers within a division requiring that service. In allocating low tension distribution costs, the air-line distance between the customer and the nearest high tension station was established, and multiplied by the number of kilowatts of demand. This kilowatt-miles figure was translated into cost by multiplying by a divisional rate per kilowatt-mile. In allocating low tension stepdown costs, the customer was charged for stepdown at a standard rate per kilowatt, varying with the size and type of station supplying the service. Standard costs were translated into actual costs by applying a conversion factor, Mr. Coleman said.

From a standpoint of cost, low tension distribution was a relatively minor item, accounting for only about two per cent of the 1956 cost of power, the speaker pointed out. Although a fair number of municipalities were taking power from low tension lines, the total load was small, and the effect upon individual costs was out of proportion to the effect upon total cost. It affected, to a greater degree, comparatively small municipalities at the end of a long distribution line where costs of $9.00 or $10.00 (or even $16.00) a kilowatt for low tension distribution were not uncommon. Any increase in the cost of the function had a severe effect on the customers who shared it, Mr. Coleman observed. A new high tension station introduced into the system might upset the equilibrium of costs among those customers supplied at low voltage, and might have severe effects upon customers not fortunate enough to have a high tension station in their own backyard.

"Your associations," he concluded, "are now studying proposals designed to lighten the burden of the little fellow at the end of a long line. We hope their deliberations will be fruitful, and will lead to changes in the costing system needed to reflect the conditions of today." ■



L. A. WADDELL
Lindsay — O.M.E.A.

By "Mac",
Toronto Telegram Caricaturist



J. A. WILLIAMSON
Niagara Falls — A.M.E.U.



MAYOR HAROLD SCHNEIDER
Port Dover — O.M.E.A.

LOAD STUDY PROGRESS



HARRY HYDE
Assistant Manager
Toronto Hydro

"THE necessity for a residential load study is daily becoming more obvious and, in some respects, more urgent."

With these words Harry Hyde, Assistant Manager, Toronto Hydro-Electric System, set the mood for his report on the activities of the A.M.E.U. Load Study Committee.

Speaking during an A.M.E.U. management session on progress in the survey preparations, Mr. Hyde asked for co-operation in the test work soon to be carried out in many municipalities under the direction of the committee.

He told delegates that, generally speaking, the domestic load had doubled in the past 10 years, and indications were that a similar increase could be expected in the next decade.

"If this continues, it is obvious that not only will our present distribution facilities become inadequate, but our present distribution methods will become obsolete," Mr. Hyde said.

Substantial economies could be achieved if preparations were made now, instead of embarking on a "crash program" later, or, alternatively, changing lines and equipment every few years to meet conditions as they arrived, he added.

"For proper planning, we should know more of the nature of the load of the future, and that is where the load study comes into the picture."

The Load Study Committee was constituted last year. Its function was defined by the A.M.E.U. Engineering Board as follows: "To develop a plan to provide a continuous, efficient, data-gathering system, which will permit studies to be made of (a) the characteristics of domestic customers' total electrical requirements, and (b) the requirements of individual appliances."

At the first committee meeting, in June last year, three sub-committees were formed and designated: *Load Survey Units, Administration of Load Surveys* and *Processing of Load Survey Data.*

Most of the energies of the first-named sub-committee had been centred so far on the investigation, evaluation and testing of metering equipment available for load survey purposes, Mr. Hyde said.

"One of the great deterrents to large-scale load surveys in the past has been the task of reading data from graphic charts, and the translation of this data into usable forms," he explained.

Only Two Meters

After prolonged investigation, it was found that there were only two meters suitable for the size of the job. One was a punched tape-recorder, while the other was a magnetic tape-recorder.

Both were now undergoing modifications necessary before a final choice between the two could be made. It was hoped that the modifications would be completed "in the near future."

The *Processing of Load Survey Data Sub-committee* had been wrestling with the new and highly-technical problems of translating the raw data into a form suitable for processing in the Univac II electronic computer soon to be installed by Ontario Hydro, Mr. Hyde said.

Computer programming was one of the biggest problems facing this sub-committee. He continued:

"Specifically, it has been a problem not only of 'what do we want to learn from this survey?', but also 'What is the minimum information that will suffice, consistent with cost, computer capacity, and computer time available?' "

The *Administration of Load Surveys Sub-committee* could not really begin its work until the Load Survey Unit Sub-committee had been selected, Mr. Hyde said. Eventually, the latter sub-committee would outline carefully all the survey work, and recommend ways in which it should be tackled. It would also arrange for such staff training as might be necessary.

Mr. Hyde concluded his address with these words:

"The customer's electrical requirements must be met. Thus we are obliged to see that not only an adequate supply of electricity is available to him, but that it is supplied in the most efficient manner possible. Load research will provide utility management with the information to help achieve this goal.

"We in the Hydro family can rest assured that positive action is being taken by our association to maintain Ontario's place as a leader in the electrical utility industry." ■



AFTER HIS ADDRESS, Mr. Harmer was noted discussing details of a profile drawing of an electric water heater with W. A. Doherty, Gravenhurst, and Robert Butter, General Manager, Owen Sound P.U.C. (right). The latter utility has been active in promoting the increased use of these important appliances.

"THE HEAT IS ON . ."

THE heat is on in the campaign to increase the efficiency and to improve the design of electric water heaters.

That was the information provided by W. Roy Harmer, Ontario Hydro's Assistant Director of Consumer Service, at the recent O.M.E.A.-A.M.E.U. Convention.

Addressing a joint session, Mr. Harmer established two main points:

The challenge of competitive types of water heaters is growing; and, Ontario Hydro and the municipal utilities must be prepared to embark on a full-scale program to increase the popularity and use of electric water heaters.

Mr. Harmer described a review of the number of installations of flat-rate water heaters in Ontario over the past 10 years as "rather disturbing." Up to 1955, there was a steady increase in the number of these appliances each year, he said. But, in 1956, the number of new installations dropped very materially, and this trend continued during last year.

In some areas, there were actually fewer electric heaters in service by January 1 last year than there were at the beginning of 1956.

"But most alarming to electric utilities today," Mr. Harmer went on, "is the fact that in a great many of the new housing developments, no new electric water heaters are being installed."

He outlined three probable reasons for the loss in popularity:

One, he said, resulted from the decision in 1953 to discontinue the purchase and distribution of water heaters to utilities. When many municipalities stopped active promotion of the heaters, their customers were deprived of a convenient source of supply.

Another reason, Mr. Harmer continued, was the household demand for greater quantities of hot water at higher temperatures than ever before. Existing electric water heaters had not been able to adequately supply these extra demands, created mainly during the past few years by automatic washers.

The third major reason for the decline in installations was the availability of natural gas water heaters with attractive sales and service policies in areas of Ontario not previously supplied with natural gas, he said.

The effect on an electrical utility if the trend to other types of heaters continued must be viewed most seriously, Mr. Harmer warned.

The loss of the present water heater load or the failure to maintain or even increase the rate of growth of new load would result in a lowering of utility load factor, he said. If the load factor fell below a "break-even" point, a deficit would result, and this deficit would have to be met by reducing the standard of customer services or by raising rates.

What then, Mr. Harmer asked, can be done to increase the number of electric water heater installations?

At the request of the associated electrical utilities, Ontario Hydro had already undertaken a review of the whole water heater situation, he said. So far, investigations by the Commission's Research Division had indicated that, by using larger tank sizes and higher wattage elements, the design of the Hydro water heaters could readily be improved to provide greater quantities of hot water, combined with

(Continued on page 36)



RE-ELECTED to the 1958 executive of the Electric Service League of Ontario, the officers (left to right): I. K. Sitzer, Ontario Hydro, Second Vice-President; W. J. Wylie, Toronto Hydro, President; Eric Hall, Toronto, First Vice-President, and Harry Foy, Manager and Secretary-Treasurer, survey the plans for expanding the League's activities this year.

FRESH INTEREST IN ADEQUATE WIRING

Increasing support for the Electric Service League of Ontario from many Hydro utilities during 1957 was reported by President W. J. Wylie at this year's O.M.E.A.-A.M.E.U. Convention.

Mr. Wylie said some Hydro municipalities had given considerable thought to various methods of approach to the promotion of an adequate residential service in houses under construction. Approximately 24 utilities had taken direct action by adopting regulations, or by initiating amendments to their municipal building by-laws whereby 100-ampere services for single-unit dwellings were established as the minimum requirement. Others had similar plans under consideration, while some utilities had assigned staffs to carry out promotional work with builders, electrical contractors, schools, church groups and other organizations.

Mr. Wylie pointed out that a gratifying indication of the effect of the promotional work by the League, Ontario Hydro and local utilities was provided by the number of outlets installed in new houses – certified as Red Seal homes – the average for 1957 being 80.9, a substantial increase over the 1956 figure of 52.

Addresses and films presented during 1957 at 76 meetings of Ontario service clubs and at conventions helped to inform electrical customers of the importance of adequate wiring. Attendance at these meetings exceeded 7,000 persons.

In addition, the League staff set up and manned displays in 22 exhibitions and fairs in southern Ontario municipalities.

Drawing attention to the successful National Electrical Week observance in February this year, Mr. Wylie said the Canadian Electrical Council, of which the provincial electric leagues across Canada are members, sponsored this function, and arranged that the leagues would undertake to organize the activities in their own provinces.

Ontario Hydro Chairman James S. Duncan headed the Honorary Provincial Committee, which also comprised the presidents of the O.M.E.A. and the A.M.E.U. as well as the presidents of three large electrical equipment manufacturing firms, Mr. Wylie stated in expressing the league's appreciation of the support and assistance given by these gentlemen.

Although further time would be required to summarize the activities of the local utilities and organizations in the "Live Better Electrically" campaign, it was evident that a high level of interest had been aroused in many municipalities, the speaker said. "This could be maintained," he suggested, "with benefit to the people of the community, the municipal utility, the electrical contractors and appliance dealers and the house builders, by a continuation throughout the year of the co-operation, which was evident in the arrangements for National Electrical Week." ■

NAME 1958 OFFICERS

(Continued from page 21)

W. R. Pfaff, General Manager, St. Catharines Public Utilities Commission, was elected Vice-President with Harry Hyde, P. Eng., Toronto, and Ronald Harrison, P. Eng., Scarborough Township, as Vice-Presidents. The following were named Directors-at-Large: F. G. York, P. Eng., General Manager, Ottawa Hydro-Electric Commission; W. H. Powell, P. Eng., General Manager, Peterborough Utilities Commission; C. W. King, Superintendent, Dresden Utilities Commission.

District Directors are — Eastern Region: H. W. Little, P. Eng., General Manager, Brockville Public Utilities Commission; East Central Region: E. L. Burnham, P. Eng., Assistant Manager, Belleville Utilities Commission; Georgian Bay Region: Stewart Holt, Secretary-Treasurer, Midland Public Utilities Commission; Niagara Region: H. E. Brownhill, P. Eng., General Manager and Secretary, Stamford Township Public Utilities Commission; Northeastern Region: N. H. MacKinnon, P. Eng., Manager and Secretary, Sudbury Hydro-Electric Commission; Northwestern Region: E. A. Vigars, P. Eng., Manager, Port Arthur Public Utilities Commission; Toronto Region: J. A. Torrance, P. Eng., Chief Engineer, Etobicoke Township Hydro-Electric Commission; West Central Region: A. G. Stacey, P. Eng., Engineer, Guelph Board of Light and Heat Commissioners; Western Region: D. M. Seath, P. Eng., Manager and Secretary, Ingersoll Public Utilities Commission. W. R. Mathieson, Toronto, was re-appointed Secretary-Treasurer.

Like Mr. Merson, the new A.M.E.U. President was born in England, but emigrated to Canada with his parents when 10 years old. He received his primary and secondary education in Toronto schools, and graduated from the University of Toronto in engineering in 1924.

Prior to entering university, Mr. Williamson was employed by Ontario Hydro as a draftsman. After graduation he rejoined the Commission staff. His first assignment as an apprentice engineer was with the Construction Department at Cameron Falls on the Nipigon River. He was transferred to the Windsor Rural Operating Area staff, and later served with the Operating Department at the Ontario Power Generating Station at Niagara Falls and in other capacities before leaving the Commission to become associated with a private firm.

He joined the staff of the Niagara Falls Hydro-Electric Commission as Assistant Manager and Chief Engineer in 1945, later being appointed Manager on the retirement of J. E. Teckoe, Sr. In January, 1956, he was named General Manager.

During World War II, Mr. Williamson served with the Royal Canadian Electrical and Mechanical Engineers, holding the rank of Captain upon demobilization.

Associated with a number of engineering organizations, the A.M.E.U. President is a member of the American Institute of Electrical Engineers, an associate member of the Illuminating Engineers Society and the Association of Professional Engineers of Ontario.

Active in community affairs he is a former Chairman of the Greater Niagara Community Chest and a member of the Lions Club.

Mr. Williamson has taken a prominent role in A.M.E.U. affairs for the past seven years, having been a member and Vice-Chairman of the Rates Committee; Vice-Chairman of the Underground Standards Committee; Chairman of the Engineering Section; Chairman of the Engineering Standards Liaison Committee; Chairman of the Association Operations Section; Chairman of the Convention Committee; Director of the Niagara Region, Director-at-Large, and Vice-President in 1957. ■

THE CHAIR WAS SOFT

(Continued from page 11)

province the opportunity of living ever better electrically as the days go on and, as the electric age advances, to higher levels of modern living. ■

Convention Caricatures

by "Mac" of the Toronto Telegram



HARRY LUCKINS
Sarnia — A.M.E.U.



JOHN DAWSON
Dunnville — A.M.E.U.

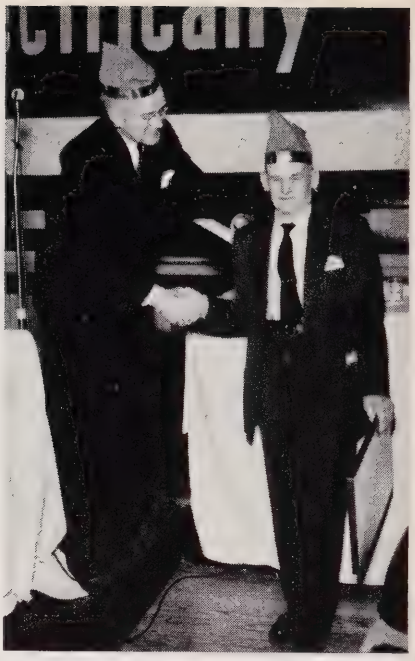


E. M. SODEN
Huntsville — A.M.E.U.



DOUG. HORNICK
Comber — O.M.E.A.

LONG SERVICE HONORED



W. ROSS STRIKE, Hydro's First Vice-Chairman, presents a long-service award to F. R. Anderson, Ingersoll. The hats were worn by all banquet guests to formally celebrate the inauguration of the co-operative "Live Better Electrically" educational campaign.

EIGHT members of the Ontario Municipal Electric Association were given special recognition at this year's annual convention by the presentation of long-service certificates.

Representing a combined total of 126 years, the certificates were presented to: C. A. Love, Ingersoll, who has 18 years as a utility commissioner and O.M.E.A. member to his credit; G. A. Macdonald, Peterborough, 17 years; F. R. Anderson, La Salle, 16; George L. Foulds, Paris, 15; Dr. A. C. Anderson, Strathroy, 15; Thomas McCord, Point Edward, 15; James C. Barr, Sarnia, 15; Thomas D. McLaughlin, Palmerston, 15.

In making the formal presentations of the certificates, which cited the recipients' "loyalty to the ideals of our province-wide, publicly-owned hydro-electric systems," W. Ross Strike, Ontario Hydro's First Vice-Chairman, described it as "one of the most pleasant and important duties I have to perform."

During 1957, long-service certificates were also presented to five former commissioners who had served 15 years or more but retired before the awards were inaugurated.

One of these men — Harry S. Brown — served for 29 years on the Brockville Public Utilities Commission before retiring in 1950 at the age of 86. The others honored were Harold G. Foote, who spent 22 years on the Port Colborne Commission; William Neil, Blenheim, 18 years; Andrew T. Ward, Ridgetown, 16 years, and David Irving, Blenheim, 15 years. ■

D. P. CLIFF, Secretary-Treasurer, O.M.E.A., extends congratulations to five of the recipients. The group includes (left to right): G. L. Foulds, Paris; Mr. Cliff, J. C. Barr, Sarnia; Thomas McCord, Point Edward; Dr. A. C. Anderson, Strathroy, and Thomas McLaughlin, Palmerston.



LIGHT ON LAMPS

THE rapidly-expanding development and use of the electric discharge light sources has not dimmed the popularity of tungsten-filament lamps.

That is the view of G. F. Dean, Supervising Engineer of the Lighting Service Section, Toronto Hydro-Electric System. Mr. Dean spoke on "The 1,500-Hour Lamp" at this year's O.M.E.A.-A.M.E.U. Convention.

He told an A.M.E.U. management session that, in spite of their high luminous efficiencies, the electric discharge lamps had some inherent characteristics and limitations, which gave the tungsten-filament lamps definite advantages.

According to the Dominion Bureau of Statistics, 94 per cent of the 131,000,000 lamps sold for use on electrical utility lines last year were the tungsten-filament type.

This continuing popularity justified consideration of lamp-life, from time to time, as there were changes in energy rates, lamp prices and maintenance costs, Mr. Dean said.

Incandescent lamps could be designed for any desired life-term to fulfill the particular purpose for which they were to be used, he added. For example, there was the photo-flood lamp with a short, bright life of two to six hours; the other extreme was represented by the heat lamp, used for therapy and industrial drying, with a long, dim life up to 10,000 hours.

Mr. Dean, in his convention address, dealt specifically with general service lamps, which include the Ontario Hydro 1,500-hour lamp.

Three Cost Factors

In considering the economics of lamp-life, he explained, there were three cost factors to be taken into account — energy rate, lamp cost and replacement cost. The first two factors were definite figures, with energy rate being the most important.



G. F. DEAN, Supervising Engineer of Toronto Hydro's Lighting Service Section, demonstrates the efficiency and characteristics of several types of bulbs during his convention address.

Even at one cent per kilowatt-hour, the energy cost of a 100-watt lamp through its life was almost four times the actual purchase price, he said.

Replacement Cost

The third factor — replacement cost — was the troublesome variable that made it extremely difficult to reach a reasonably true evaluation of the cost of light. It depended, to a great extent, on the location of the lamps and their accessibility in time of replacement, Mr. Dean continued. Lamps in positions lacking easy access could involve cost both in time and labor for business organizations.

Accident Hazard

Even in homes, where there were no labor costs and little time involved, there was the intangible feeling of disappointment when a lamp failed. There was also the accident hazard when climbing to change lamps was involved.

"No matter in what place a lamp is used, there is always a replacement cost in either labor, time, inconvenience, nuisance value or accident potential," Mr. Dean said. "In addition, there is the loss of the desired light until the lamp is replaced; in industry, this could mean loss in production."

The biggest advantage of the 1,500-hour lamp was the fact that it required replacement less often than the other two popular general service lamps, the 1,000-hour and 750-hour.

Of course, to give a lamp longer life, it was necessary to reduce the light output, Mr. Dean added. But the loss of light in increasing life from 1,000 to 1,500 hours averaged only 6½ per cent, and this was insignificant from the standpoint of visual performance.

In conclusion, Mr. Dean said: "Our consumers should be advised that there is a Hydro lamp available that is relatively nuisance-free, and whose use is economically sound on Hydro rates." ■

AMONG THE SPEAKERS



HON. RAY CONNELL
Second Vice-Chairman
Ontario Hydro



ROY WARWICK
Blenheim



J. F. COOK
Windsor



LARRY HENDERSON
C.B.C. Commentator

PENSION PLAN REPORT

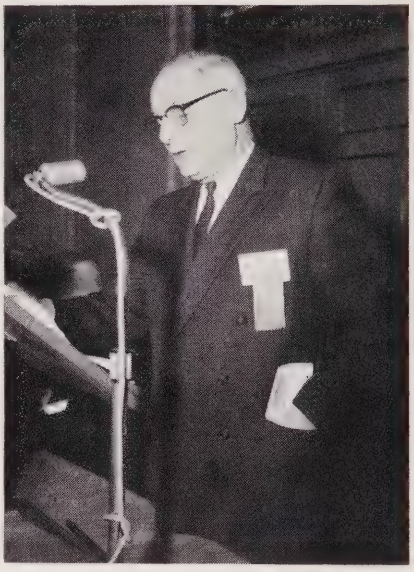
INCREASED participation in the Municipal Hydro-Electric Pension and Insurance Plan was indicated in the annual report for 1957, presented by Chairman P. R. Locke, St. Thomas, at this year's O.M.E.A.-A.M.E.U. Convention during a joint session.

By the end of the year, a total of 6,442 employees representing 150 municipalities were enrolled in the plan. A total of 80 of these municipalities had also adopted Part II (Supplementary), inaugurated in 1951 to increase benefits for municipal utility employees due for retirement in the future and for utility employees scheduled for immediate retirement.

New entries during the year included Virginiatown, Orono, Kemptville, Bobcaygeon, East York Township, Atikokan Township and Norwich, while the Scarborough Township Public Utilities Commission joined in January, 1958. The following municipalities adopted Part II in 1957: St. Mary's, Waterloo, Peterborough, Dunnville, Ingersoll, Thorold, Georgetown, Brockville and Woodstock.

In presenting the report, Mr. Locke expressed regret that the response of those municipalities already enrolled in Part I, and who were expected to take advantage of Part II, had not measured up to expectations. "Your committee is hopeful," he said, "that by continued publicity they may be able to arouse further interest in the Supplementary Plan, and eventually convince the remaining 70 commissions and their employees of its advantages."

Statistics included in the report revealed that 506 retired employees were drawing a monthly total of $34,221 in pension payments by the end of the year. Life insurance amounting to $2,618,440 had been paid to December 31, 1957, in connection with 831 death claims. Total life insurance in force was $29,456,260.



P. R. LOCKE
St. Thomas
Chairman, Municipal Hydro-Electric Pension and Insurance Committee

Two problems mentioned in last year's report still remained to be finalized, the speaker continued. The first involved the development of some form of adequate coverage for those employees who, for age or other reasons, were not eligible for the plan, or who found the amount of pension inadequate because of later entry. A means of transferring or stabilizing benefits of the Ontario Hydro and the municipal pension and insurance plans for employees transferring employment, was the second question still not resolved. Mr. Locke expressed the hope that some of the difficulties could be overcome, and that the committee could present a detailed report in the near future.

In conclusion, the report suggested that those commissioners and utility executives, who had not considered retirement benefits for their employees, "had a responsibility and an obligation to provide an opportunity now for them to share the cost and become enrolled in the plan." ■

SYSTEMATIC PURCHASING

"For the protection of utility commissioners, the people they represent, and the executives and employees themselves, a definite policy and procedure for purchasing should be set up."

In his paper "Purchasing Procedures from an Audit Viewpoint," J. E. Coubrough, Hamilton Hydro-Electric Commission, followed these introductory remarks with a description of a purchasing control system flexible enough to meet the requirements of most utilities. Speaking during an A.M.E.U. management session at the annual O.M.E.A.-A.M.E.U. Convention, he outlined the steps involved in setting up such a purchasing plan, and he suggested benefits that might be expected to result from its adoption.

The speaker first emphasized the desirability of having all purchasing performed by a single, designated official or employee, even where it was not practical to have a full-time purchasing agent. He then described a basic purchasing procedure designed to ensure a high level of operating efficiency, and to measure up to the acid test of a rigorous audit.

Under the plan, the initial requisition for materials, tools, equipment or outside services should originate within the department or section requiring them. It should then be approved by a superior to certify for quality, quantity and the necessity to purchase — not, at this stage, for price.

After the purchasing agent had inquired as to price, availability, and other pertinent details, he should issue an office purchase form showing the supplier selected, type and quantity of materials, price, the name of the requisitioning department, and the budget reference, if applicable. The purchase order should be issued over the signature of the purchasing agent, after it had been approved by the executive responsible, whether he be manager, chief engineer, comptroller, treasurer or secretary.

The original of the order should then be sent to the supplier, the duplicate to the accounting department, and the triplicate to the storekeeper. The date of receipt of the goods, together with the date and amount of the invoice, would later be entered by the accounting department.

The speaker also dealt with the question of establishing purchasing authority and policy with regard to tenders and the award of contracts, which, he said, must be dealt with by the utility commissioners.

"After setting purchasing policy and approving the annual budget," Mr. Coubrough said, "the commission should not interfere in the actual purchasing of goods and services unless legitimate complaints are lodged, or the management is not enforcing the approved purchasing policy." ■

A HEALTHY GROWTH

(Continued from page 1)

systems increased 6.5 per cent over 1956.

Particularly striking is the fact that last year's demands on the Hydro systems represented an overall annual growth of six per cent, while the increase in demands experienced by major United States electrical utilities averaged only 2.8 per cent in 1957.

The foregoing facts constitute sufficient grounds, we are certain, for a feeling of gratification and confidence that Ontario, despite certain evidences of a "levelling-off" in the economy, last year maintained — to use Mr. Duncan's words — "a healthy growth."

AMONG THE SPEAKERS



T. J. MOFFAT
Listowel



W. A. SECORD
Brantford



JOHN IRVINE
Etobicoke Township



DR. V. S. WILSON
Etobicoke Township

"THEY WORK EVERY DAY"

Stressing the diversity of A.M.E.U. activities was a practical address on "punch-card billing" during a management session at this year's annual convention.

The speaker, John Irvine, Secretary-Treasurer, Etobicoke Hydro-Electric Commission, pointed out that approximately 86 per cent of the utility billing in the United States had been handled by the punch card method for more than 20 years. He said that Ottawa, Kingston and St. Catharines had recently entered this field, as well as Etobicoke Township – each using different methods. Mr. Irvine confined his observations to the system adopted by the Etobicoke utility discussing its operation, effect on costs and other benefits.

Before describing the mechanics of the system itself, Mr. Irvine explained that the Etobicoke Commission supplied electrical service to approximately 40,000 customers. Some 3,000 to 5,000 new customers were being added per year – a rate of growth that seemed destined to continue to a possible ultimate total of 150,000 services. He emphasized that the punch card system was extremely flexible in the planning stage, but warned that, once set up, it was very difficult to alter. He suggested that a supply company representative, thoroughly trained in the use of the equipment, should be allowed a full year for planning.

The system of punch card billing with "Mark Sense" meter reading installed by the Etobicoke utility for domestic and small commercial customers, employed seven separate machines, he said. The speaker outlined their function as follows:

(1) The original name and meter cards are prepared by a card punch device, somewhat similar to a typewriter, except that it punches holes instead of printing letters;

(2) The holes punched in the cards are translated by an "Interpreter" machine, which prints this information across the face of the card;

(3) Special pencil marks made by the meter reader are converted into punch holes by the Document-Originating Machine, which is also used to reproduce information;

(4) The bill is calculated and the results punched by a Calculating Punch;

(5) The name card is merged with the proper meter card by a Collator;

(6) The cards are sorted into account number sequence by a Sorting Machine;

(7) An Accounting Machine does all printing and accumulates totals, etc.

Benefits of the new system, which combined the best features of the stub and ledger plan for the crediting of accounts, included greatly increased accuracy and reduced supervision, Mr. Irvine pointed out. Use of the standard punch card as a bill allowed automatic listing and distribution of cash.

Another advantage was the fact that a utility could maintain billing schedules on a year-round basis, even during holiday periods.

"The machines work every day, don't drink coffee, don't get temperamental and don't get married," Mr. Irvine observed amid laughter.

He also noted that pro-rated bills were easily calculated, and that the machine could determine where the minimum bill should be charged simply by "Mark Sensing" the proper space on the meter card.

Dealing with cost, the speaker reported that the staff now required for domestic billing, crediting and collecting, totalled 12, whereas, 19 would have been required if the old system had been continued. He stressed that the same staff could handle any future expansion in billing, while the commission was already starting to recover the cost of its investment.

In conclusion, Mr. Irvine cautioned that utility billing was a most difficult adaptation for punch card machines, but expressed the view that it offered an opportunity for those dissatisfied with the growing complexities of the personnel field. He credited much of the success of the new system at Etobicoke to the skilled technician they were able to obtain as supervisor. ■

THE HEAT IS ON

(Continued from page 29)

faster recovery. Five new models had been suggested.

A committee had also been set up to review the present water heating rates, and to develop a policy for the purchase, distribution, installation and servicing of these water heaters. Mr. Harmer cautioned that, regardless of the performance of the electric water heater or the economy of its operation, few would be installed unless Ontario Hydro and the electrical utilities were prepared to match the sales and service policies of their competitors.

The study of this phase of the problem had not yet been completed, he said. But indications were that, in order to retain electric water heating loads, a full-scale water heater program must be undertaken.

Aspects of such a program now under consideration were: development of a new electric water heater specification; establishment of sale prices and rental rates; establishment of energy rates; a plan to purchase water heaters to Hydro specifications and to distribute them through regional offices; a plan to install and service the heaters; and a plan to promote their use.

"When this work is completed, and if the Commission approves the program," Mr. Harmer said, "I am sure that the utmost assistance will be given to any of the municipal utilities, wishing to extend their own water heater program." ■

HIGHWAY TO THE WORLD

Toronto's position as a major Great Lakes port will have an important impact on the economy and electrical consumption of many southern Ontario communities.

During the course of a luncheon address at the recent O.M.E.A.-A.M.E.U. Convention, Captain E. C. Hopkins, Director of Trade Development, Toronto Harbor Commission, in dealing with the impact of the St. Lawrence Seaway on Ontario's economy, emphasized the advantages of Toronto's "excellent transportation in the southern section of the province. Captain Hopkins pointed out that several overseas firms had already established themselves in southern Ontario in anticipation of the completion of the Seaway.

"This pattern will be repeated, more and more, I am certain, and it is to the advantage of the community to have them. Not only do they use electricity, but their payroll money is spent in your stores and with your professions," he stressed. At the outset of his address, the speaker expressed admiration for "the vast organization, which you people so capably represent."

"We feel that the completion of the Seaway in 1960 will be the result, in great measure, of the activity of Ontario Hydro in pushing strongly for the power development in the International Rapids Section of the St. Lawrence River."

Will Speed Growth

The Seaway, he declared, was not new, but merely a further expansion of growth that commenced in early 1700's when the shallow Casson Canal was constructed in the Lachine area of Quebec. Continuing, the speaker asserted that the latest development "is now coming into being because the growth of Canada requires it, and it is expected that it will speed that growth."

The Seaway would permit 85 per cent of the world's ocean freighters – now forced to turn at Montreal – to proceed up into the "Eighth Sea" – the Great Lakes chain extending some 1,200 miles inland.

The 22 locks, now in existence along the St. Lawrence River, will be reduced to seven, the speaker continued. "With many of the navigation hazards being removed or submerged by the higher water levels, it is estimated that about 1½ days will be cut from the operating time of the present voyage between Montreal and Toronto."

New Shipping Lines

The importance of Canada's declaration a few years ago that she would build the Seaway independently if necessary, was reflected in the reaction it aroused abroad.

"Overseas shipping lines took the announcement at its face value, and immediately extra shipping lines commenced to operate into the Great Lakes in anticipation of the new seaway," Captain Hopkins stated.

New Terminal

In this connection he dealt with the Port of Toronto's dockage facilities. As a major Canadian Great Lakes port, it had provided a $1 million terminal. A second terminal would be in use this year, to be followed by other terminals as traffic increased. Early planners had anticipated the Seaway by constructing the piers for an ultimate 30-foot depth. "Dredges can now excavate without fear of the structures collapsing," he pointed out.

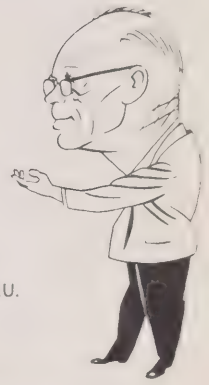
Toronto also had sufficient labor force to handle increasing cargoes, thus ensuring Toronto's position as the major distributing point for the province. These factors, combined with the city's transportation connections with other communities, made Toronto an important partner in the great Seaway enterprise, – "and we will be sharing the benefits that accrue from it," he declared in conclusion. ■

Convention Caricatures

by "Mac" of the Toronto Telegram



D. N. DURWARD
Galt — A.M.E.U.



HARRY MANN
Hanover — A.M.E.U.



MERLE DICKERSON
North Bay — O.M.E.A.



JOHN TORRANCE
Etobicoke Twp. — A.M.E.U.







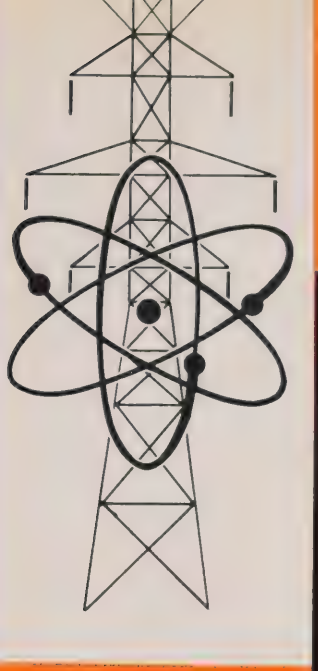
CONVENTION ISSUE

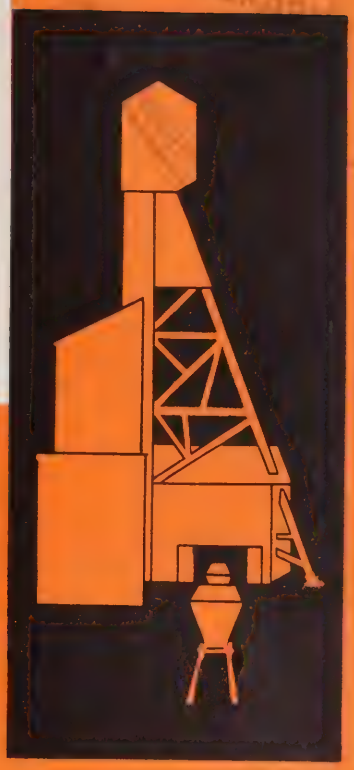






ONTARIO
HYDRO





NEWS

MAY
1958



ONTARIO'S URANIUM DRAMA

(See page two)

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COVER PHOTOGRAPHS

Our covers this month run the gamut from uranium to tulips. The front cover is designed as a tribute to northern Ontario's uranium mining enterprise described on pages 2-5 inclusive, while the back cover depicts a spring scene along Ottawa's Driveway, which is now "ablaze" with tulips (see page 12).

INESTIMABLE BENEFITS

ONTARIO's vast store of natural resources has imparted to her economy a diversification and vigor that has placed her on an envied pinnacle among her sister provinces.

Particular interest is focused, at the moment, on a dramatic mining enterprise in the Blind River area of northern Ontario where the world's largest known deposits of uranium are being actively developed.

Last year, for example, Ontario's uranium production – much of it in the northern section of the province – was valued at $78,235,359, exceeding the year's production of all the uranium mines in the United States by more than $3 million. A substantial increase in production totals is anticipated during 1958 as five new mines are expected to begin regular operation in the Algoma district before the end of the present year.

Already these new mining developments have had a very forceful impact on the whole tempo of activity in the Blind River area. A new and fully-integrated townsite, Elliot Lake, has been established on a site that was rugged bushland little more than three years ago. Beyond the confines of the community, housing developments and countless associated commercial enterprises have sprung up.

Naturally Ontario Hydro has been called upon to furnish the "impetus" for these important activities, for between December, 1955 and January this year, the peak uranium mining load in the Blind River area has grown from some 4,500 kilowatts to 54,000 kilowatts. The intensified mining activity in this area, which is served through the facilities of the Commission's Northeastern Division, is reflected, to a large degree, in the accentuated electrical demands experienced in this division last year. Operation figures for 1957 reveal that the demands on this system increased by 17 per cent over the previous year.

The discovery and vigorous exploitation of this new and precious ore – the fuel of the "nuclear age" – marks the beginning of a significant new chapter in Ontario's mining history, representing, as it does, an extension of the province's mineral operations that seems destined to yield inestimable benefits to Ontario and to the nation as a whole.



NORTHERN Ontario's Onaping River and its picturesque High Falls, some 30 miles northwest of Sudbury, draw many admiring comments from motorists travelling between the Nickel City and the mining community of Levack.

Hydro plays a leading role in Ontario's

URANIUM DRAMA

BY DON WRIGHT

WHILE the day may come when a significant proportion of Ontario Hydro's power requirements may be derived from uranium mined in the Blind River area of northern Ontario, the situation is very much the reverse at present. The mining and milling operations, as well as the associated industrial developments and the mining community itself are largely dependent upon electric power.

Just as the great mineral storehouses of gold, silver, nickel, copper and iron were unlocked in the past with the aid of electric power, so is this vital force helping to wrest the gold of the atomic age from the rugged interior of Algoma. It is estimated that from 2½ to 3 kilowatts are required to process a single ton of uranium ore. Considering that just one of the 11 uranium mines in the Elliot Lake area has ore reserves in excess of 130,000,000 tons and a daily capacity of 5,700 tons, the importance of the role electricity will play in this modern mining drama becomes apparent.

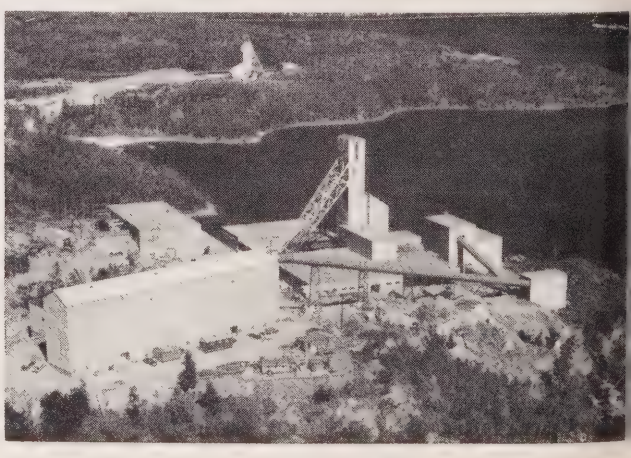
The news story of the uranium strike at Elliot Lake broke early in 1953, and, later in the year, as the importance of the discovery became evident, the Commission began planning the power supply for mining purposes. In the spring of 1955 a start was made on the construction of a 115,000-volt transformer station not far from the Pronto uranium mine near Highway 17, considerably removed from the other mines in the Algoma area. At the same time, Hydro started construction of a 115,000-volt wood pole line, initially operated at 44,000 volts, from Pronto to Elliot and Quirke Lakes in the mining areas to the north. Power was supplied from an existing 115,000-volt line, which extends from the Commission's George W. Rayner Generating Station on the Mississagi River, west of Blind River, to the R. H. Martindale Transformer Station at Sudbury. In terms of distance, the task of bringing power to the uranium mines at this stage of the development offered no particular problems, except those imposed by the rugged nature of the terrain and the remoteness of the line from the single access road. It is approximately 16 miles from the transformer station

(Continued on page 4)

OPERATIONS at the Panel mine of Northspan Uranium Mines, Limited will be carried out entirely under the bed of Quirke Lake from two shafts sunk on small islands. Ore is transported by a conveyor belt system to the new 3,000-ton uranium mill (foreground).



QUIRKE LAKE is also the site of the well-known Consolidated Denison Mines, Limited property. The new 6,000-ton-per-day capacity mill (foreground) started initial production during 1957. The long building on the left of the main production shaft provides space for 16,000 tons of fine ore. Hoist houses and service buildings are grouped around the headframe base.

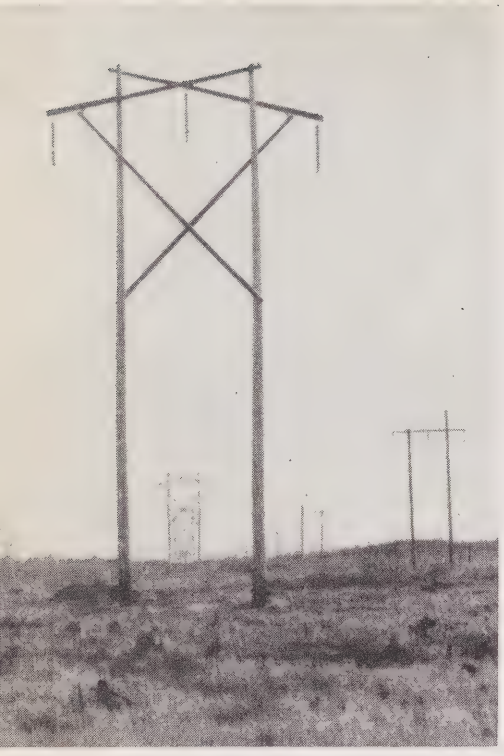




MODEL TOWNSITE of Elliot Lake is now a focal point in northern Ontario's rapidly expanding uranium-mining "empire." Increasing electrical demands reflect the community's growth



ALGOM URANIUM'S Nordic mine, which went into production in 1956, is another important property. In this aerial view, the mine's huge concentrator is visible on the left while the crusher house and the main office building are shown on the right



SOME 200 MILES of new 230,000-volt transmission line, embodying a new type of spar-arm and spar-braced pole, (foreground), have been built by the Commission to serve northern Ontario's uranium industry.

on Highway 17 to Elliot Lake and another 10 miles north to Quirke Lake.

The Pronto mine, which was the first to come into production, received initial power from Hydro in June, 1955. Just one month later, the Quirke and Nordic Lake properties of Algom Uranium were supplied with power over the new transmission line, and, before the year was out, the giant Consolidated Denison mine at Quirke Lake was using power for development purposes. The total uranium mining load in the Blind River area reached a peak of 4,436 kilowatts in December, 1955.

The boom got under way in earnest in 1956 with six new companies commencing development work on uranium properties. Initial power was delivered to Can-Met Explorations in November of that year, and in December the combined peak mining load reached 14,360 kilowatts – reflecting the greatly increased power requirements of the three original companies.

The demand for power increased rapidly in 1957 with all of the uranium mines either in production or in an advanced stage of development. During March and April initial power was supplied to Milliken Lake, Stanleigh, Stanrock, and to the three mines of the Northspan group – Lake Nordic, Panel and Spanish American.

New Transformer Stations

To keep pace with the demand, Ontario Hydro constructed transformer stations at Quirke and Elliot Lakes and commenced operation of the main feeder at 115,000-volts in March, the same month in which Algom Uranium brought its two properties into production. Radial lines from these transformer stations supply the mines, which have their own facilities for stepping down the 44,000-volt supply to the voltages required in their mining and milling operations.

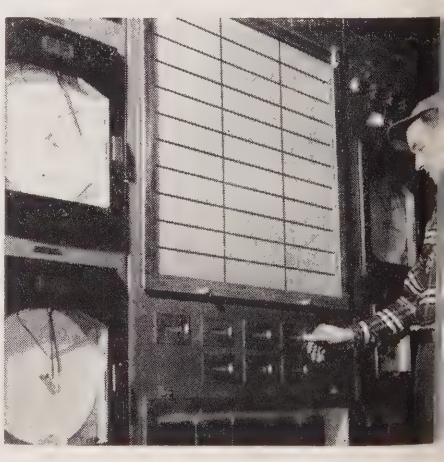
Still the demand for electric power in the Blind River area continues to grow. Figures up to July 1957 showed a combined peak mining load of 33,600 kilowatts, but other mines, including Consolidated Denison, have since come into production. Thus, by January 1958 the load was 54,000 kw.

The growth of the Elliot Lake townsite near Blind River and the quickening economic tempo of this entire section has been equally spectacular. The influx of construction workers to Elliot Lake did not commence until 1955, yet by the end of 1957, some 1,500 dwelling units, accommodating 6,000 people had been completed. Several hundred more are under way, and schools, churches, apartment buildings and shopping centres are all in an advanced stage of construction. While the townsite's requirements, naturally, have been much less than the mining demands, the peak load increased from 216 kilowatts at the end of 1955 to some 3,300 kilowatts in February this year.

The task of supplying the electrical facilities for this mushrooming community has not been without its problems, but there have been compensating factors inherent in a brand new start. The distribution system, constructed and operated by Ontario Hydro has enjoyed, like the townsite itself, the advantages of modern planning and equipment from the beginning, with none of the hazards involved in undisciplined growth. Elliot Lake is supplied through a 5,000-kva distribution station, 44 kv to 12 kv. A second station is scheduled for 1959.

Most of the dwelling units include electric stoves, water heaters and dryers, and it is interesting to note that a TV load was building up even before the opening of a TV satellite station at the townsite in October, 1956. The houses are wired with 100-ampere service to provide for future increases in the per capita use of electricity.

The impact of the uranium mining operations has been felt well beyond the confines of the town itself. Trailer camps, service stations, motels, and housing developments have materialized almost overnight along Highway 17 from Spanish, west to Blind River. Near the tiny hamlet of Cutler, Noranda Mines Limited has erected a



VIRTUALLY EVERY PHASE of mining is dependent upon electricity. At Algom Uranium's Quirke mine an operator is shown at the control panel of the Ion exchange apparatus.

large acid plant, which produces sulphuric acid at the rate of 1,000 tons daily for use by the mines in the uranium oxide recovery process. This plant, with its own 115,000-volt substation, adds substantially to the power load in the area, and it is expected to be the forerunner of other industrial operations associated with the mining and milling of uranium.

New Wood-Pole Line

In the light of these developments, Ontario Hydro has been actively engaged on various projects designed to augment and improve the power supply throughout the bustling Blind River area. Chief among these undertakings was the construction of approximately 200 miles of 230,000-volt transmission line from the Otto Holden Generating Station on the Ottawa River to the R. H. Martindale Transformer Station, near Sudbury, and westward to Blind River T.S. Now in operation, this wood-pole line incorporates a number of interesting features both in design and construction.

It is of spar-arm and spar-braced construction, and pole heights range from 65 to 80 feet, in order to accommodate an average span of 850 feet and a maximum span of 1,500 feet with 795,000 cm A.C.S.R. and 1,192,500 cm A.C.S.R. conductors. The load of 26,000 pounds spread over the average-sized pole butt required that particular attention be paid to pole settings. A variety of ingenious equipment and new techniques were used to dig the holes, raise the poles, compact the backfill and string the conductors.

A section of the new line between Sudbury and Blind River is operating initially at 115,000 volts, and temporary switching facilities have been installed at the western terminus to connect it to a second 115,000-volt line to Elliot Lake. The necessary transformer capacity is provided by the two existing stations at Elliot and Quirke Lakes. At the Quirke Lake station where the line terminates, two 5 mva. synchronous condensers will serve to maintain voltage at the proper value.

Improving Supply

The second high-voltage transmission line provides for the rapidly-increasing power requirements of the Elliot-Quirke Lake areas, and further ensures against outages in the vital mining supply circuits. An interruption of only a few minutes' duration is sufficient to dislocate the refining process for two or three days. Although the mines are equipped with auxiliary diesel generators, these are only sufficient to carry such services as lighting and critical control circuits. Because the milling operations are mostly on a 'round-the-clock basis, the greatest care was taken in the construction of the original 115-kv. system, and, aside from pre-arranged outages necessitated by connecting new customers or incorporating new facilities, no serious interruptions have occurred. First-class equipment, combined with a reliable primary source of supply and a well-cleared right-of-way, minimized the potential hazard of a single-circuit supply.

Much has been written of the lonely prospector's role in the great mineral developments of the past, but, with the coming-of-age of the Canadian mining industry, the credit must now be shared with the geologist, mineralogist, financier and construction engineer. Back of the combined skills and enterprise of these men is the dynamic force provided by electric power. Nowhere is the importance of electricity more in evidence than in the southeastern Algoma area where Hydro estimates its combined load, including rural, municipal and industrial customers, will approach 100,000 kilowatts by the end of 1958. An overwhelming proportion of this load is directly or indirectly attributable to the discovery of uranium. ■



(Photos by courtesy of the Ontario Department of Mines and Algom Uranium Mines Limited)



IN THE Consolidated Denison Limited mine laboratory, a lady technician operates the intricate fluorimetric assay equipment.



THE END PRODUCT. Here 300-lb. drums of bright yellow uranium oxide are awaiting shipment from an Ontario mine.

The St. Lawrence

Power Project in a —

BIRD'S-EYE VIEW

FLYING over the International Rapids Section of the St. Lawrence River these days is a memorable experience. In little more than four years practically the entire area has been transformed as the world-famous St. Lawrence Power Project and important phases of the associated Seaway development have moved forward to completion. First the airborne traveller would see the adjoining powerhouses of Ontario Hydro and its partner, the Power Authority of the State of New York. These massive integral structures, which will house 32 generating units (16 units to be located in the Commission's Robert H. Saunders – St. Lawrence Generating Station) span the river's north channel for a distance of 3,300 feet. Here approximately 97 per cent of the total concrete has been placed for the Canadian powerhouse, while installation of the first four generating units proceeds on schedule. Already the dewatered area immediately downstream has been re-flooded in advance of upstream flooding early in July this year. Stretching northwesterly from the end of the Ontario Hydro powerhouse is a towering dyke – punctuated temporarily by the Cornwall Canal closure structure – which will help to contain the initial 580,000-acre-foot (almost 158 billion Imperial gallons) headpond to be

ADJOINING POWERHOUSES of Ontario Hydro (right) and the Power Authority of the State of New York.

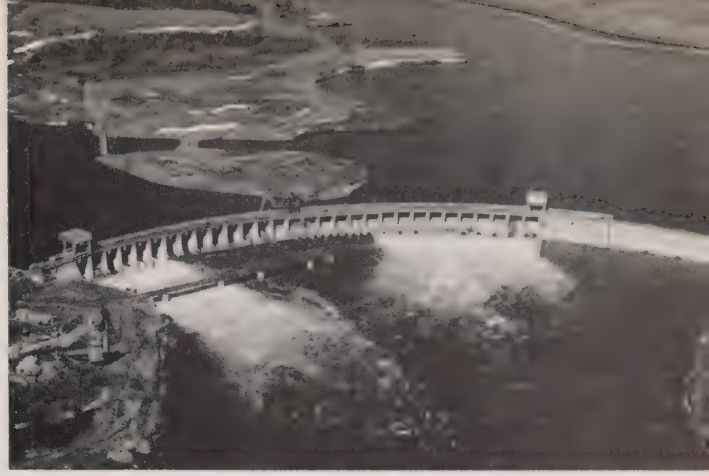


created for the 1,640,000-kilowatt hydro-electric development. Moving farther upstream the aerial observer would see the Long Sault dam stretching between Barnhart Island and the United States mainland. One of the principal structures of the power project, the 2,250-foot-long curved axis dam will maintain the headpond level required to operate the generating stations downstream. Another important component of the power development is the Iroquois dam, 25 miles upstream from Long Sault. Designed to control the outflow from Lake Ontario, this dam stretches across the river between Iroquois Point on the Canadian side to Point Rockaway in the U.S.A. for a distance of 2,540 feet.

But perhaps it would be on the Canadian shore that the airborne inspector would note the most amazing changes. Trim and modern communities have literally "sprung up" on higher ground in the last three years. Ontario Hydro's rehabilitation program, including the moving of 525 dwellings to new locations, is essentially finished, except for work in progress to complete the construction of new churches and other community buildings.

The century-old Village of Iroquois has been entirely moved to its new location 1½ miles north, and today presents an attractive appearance with its well-arranged streets, new churches, schools, shopping centre and other public buildings. Morrisburg's main thoroughfare has been virtually demolished, and, with some adjacent homes, relocated in the northeastern section of the historic community. Gone too, are the villages of Aultsville, Farran's Point, Dickinson's Landing and Wales, which once nestled on the shores of the St. Lawrence. Today these quiet communities constitute the bustling townsite of Ingleside. Five miles to the east, the new community of Long Sault incorporates the former hamlets of Mille Roches and Moulinette. This spanking, 160-acre townsite can now boast of some four miles of paved streets, as well as an eight-store shopping centre, four churches and two schools. Another major aspect of the rehabilitation operation was the diversion of two main arteries of transportation. A 35-mile stretch of Ontario No. 2 Highway, one of Canada's oldest and busiest main arteries of travel, has been relocated to afford an excellent view of the St. Lawrence's new shoreline, park system and the new townsites. Immediately north of the new highway, passenger and freight trains of the Canadian National Railways are passing over a relocated 40-mile section of main line double track.

Virtually every building, tree and pole have now been removed or demolished along this 35-mile stretch of the St. Lawrence between Iroquois and Cornwall. Clearing is reaching a climax as the date for flooding, affecting some 20,000 acres of land along the north shore, draws near. Meanwhile visitors continue to pour into the area to see the remarkable changes in the St. Lawrence Valley and the interesting transformations that have taken place in one of Canada's oldest established sections. ■



LONG SAULT DAM.



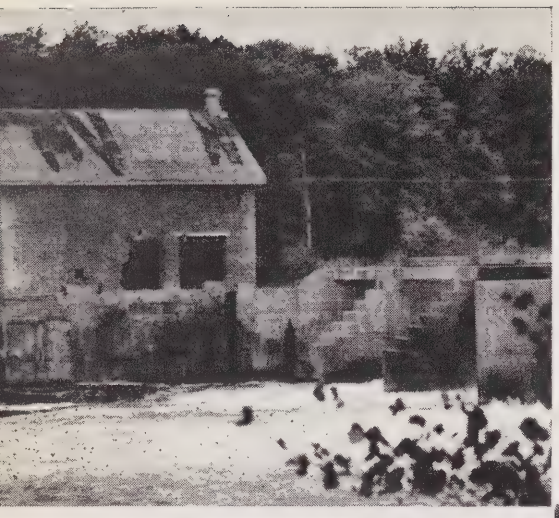
IROQUOIS DAM.



RELOCATED VILLAGE OF IROQUOIS.

HYDRO FLASHBACK

PETERBO



FORLORN APPEARANCE of the 57-year-old generating plant belies the fact that it once helped to supply power for Peterborough.

BEARING the visible marks of time and weather, the shell of a stone building at the Trent Valley Canal's Lock No. 22, north of Peterborough, Ont., often arouses the fleeting curiosity of motorists and swimmers.

Its forlorn appearance seems to belie the fact that it once housed a waterwheel and generator which helped to provide electricity for the residents of Peterborough.

The plant is now more than 50 years old. Strangely enough, although records show it was erected in 1901, the cornerstone reads 1902.

The first owner and tenant was the Otonabee Power Company, which, with the Electric Power Company, a smaller concern, supplied the first hydro-electric power to Peterborough.

Many of the facts relating to the operations of Otonabee Power have faded into obscurity, but it is believed that the power firm also owned and operated plants on the Otonabee at nearby Nassau (now the property of the Canadian General Electric Company Ltd.) and at London Street in Peterborough (now owned by the Quaker Oats Company of Canada Ltd.).

The Otonabee Power Company supplied power to the city from the Lock 22 generator and these other sites on the Otonabee River for some 12 or 13 years. Then company officers, perhaps learning that Peterborough was planning to transfer the power contract to Ontario Hydro, realized they would lose their biggest contract, and thought it a good time to dispose of the Lock 22 generator. At any rate it was purchased by the Electric Power Company in 1913, but it is not known whether the other dams and generators were sold at the same time.



COMELY PETERBOROUGH MODEL, Elaine Fletcher, graces a gap in the wall of the old building. The miniature station, erected in 1901, is believed to have ceased operation around 1913.

In 1913 Peterborough did join the Hydro family, and shortly after the old plant was closed and never generated another kilowatt.

With Ontario Hydro the only large-scale producer of electric power in the province, the dam, generator and the land around it was leased to the Commission, which held it until 1927 when the lease was relinquished. With the Electric Power Company defunct

ROUGH'S POWER



PETERBOROUGH now draws its power from Ontario Hydro's integrated Southern Ontario System instead of small Otonabee River installations. This 230,000-volt line, which crosses Highway 7 north of Peterborough, transmits power from Hydro's Ottawa River plants.

by that time the building and land reverted to the Canadian Government.

The generator was subsequently removed to the Commission's Court St. substation at Oshawa and converted to serve as a 1200-kva. synchronous condenser. It rendered yeoman service in this capacity until age forced its retirement a few months ago. During April this year "the moving finger" of Hydro's Surplus Equipment and Materials Department wrote finis to its career by signing a contract for its disposal.

Meanwhile "back at the Otonabee River" time has left its imprint on the miniature generating station. Believed to be the work of vandals, the doors have been ripped out and only rusty hinges remain.

The windows, too, seem to have fallen prey to thieves. Today only trees and shrubs fill the gaping holes left by the removal of the glass and even the frames in many instances.

All traces of flooring have disappeared with the passage of time. Only the concrete footings that once supported the generating machinery are left. These are encrusted with moss, and pitted by water entering through holes in the roof.

Resembling lattice-work, a large wooden rack on the north wall of the crumbling structure gives little indication of its original function. A chimney above it furnishes evidence, however, that at least a stove was available to heat the generator, and keep the operators warm enough to maintain it.

Submerged beside the plant is a wooden form, hewn from logs, that once served as the support for the waterwheel used to drive the generator.

Delicate Game

In the 1900 era, operation of the plant was a delicate game of juggling with the elements and the water level. Drought during the summer months frequently reduced the speed of the waterwheel, while operators had to keep a wary eye on the water level. If they allowed too much water to pass over the wheel, navigation was affected, and operation of the generator had to be suspended until the level was restored. Then, too, during the winter months the operators had to contend with ice that persistently clogged the mechanism.

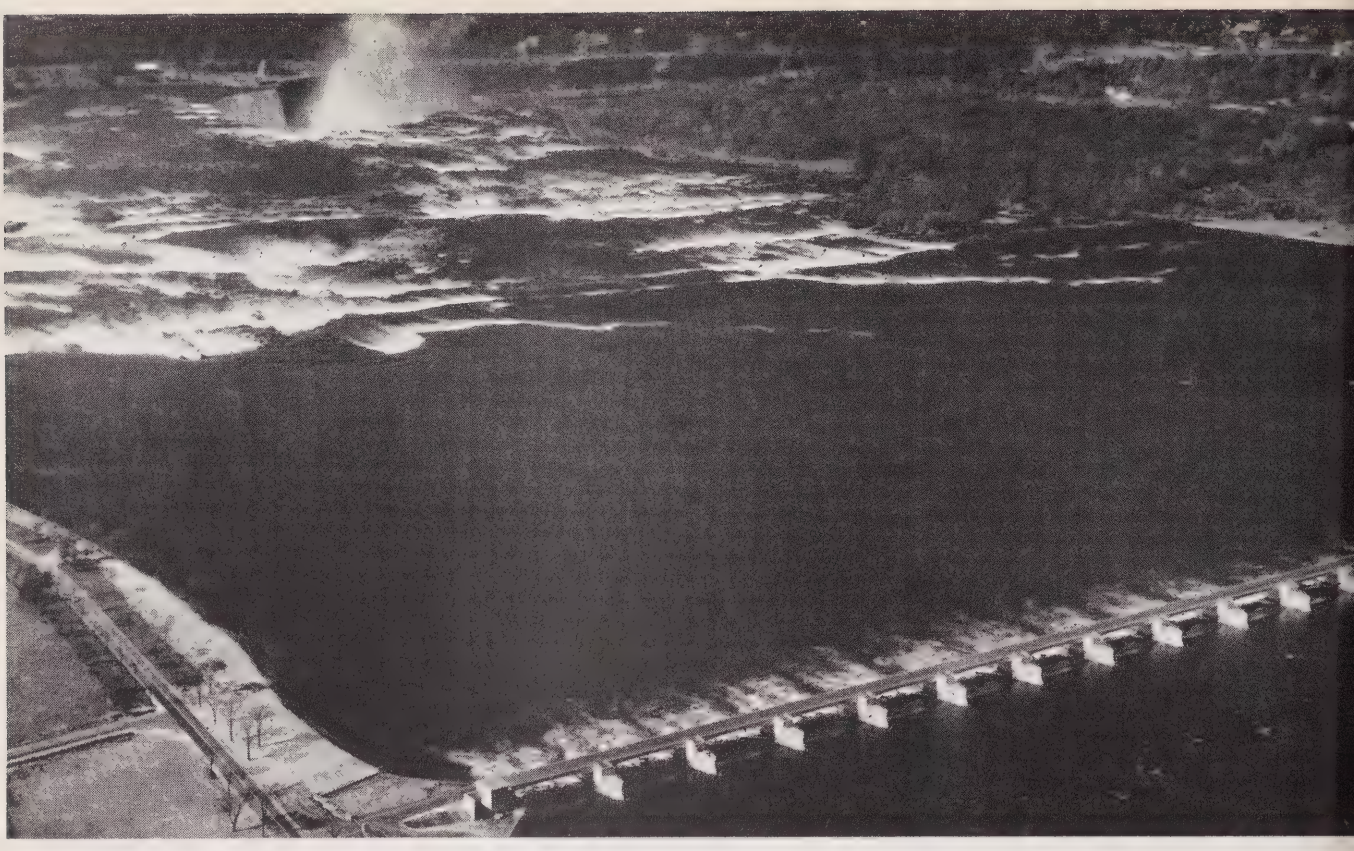
Arc Lamps

In Peterborough it was the little hydro-electric station at the foot of London Street that provided power for the Hazlett Lumber and Shingle Company during the day; at night, it supplied power for the town's carbon arc-lamps. Power from its generator, rated at 25 arc-lamps, brought Peterborough's first street lamps into life on the night of May 24, 1884.

Ross L. Dobbin, former General Manager of Peterborough Utilities Commission recalls an after-supper visit with his father to the Hazlett plant. It was known then as the Dickson Lumber Company, managed by T. G. Hazlett. Mark Wainright, the chief operator, was intently watching a voltmeter and manually controlling the voltage to maintain constant direct current for the arc-lamps. He was too busy for "foolish questions," and young Dobbin only received a frown for his curiosity.

It is interesting to recall that alternating current first appeared in 1900, and the first a.c. motor was installed in the premises of the *Peterborough, Review*, owned and operated by Ross Dobbin's father.

Today, the manually-operated voltage regulator is gone, and also the simple relationship between the small hydro-electric plants on the Otonabee and local illumination. In its place has developed Ontario Hydro's integrated supply system that challenges anyone to flick a switch and say, "This electricity came from the Trent Valley Canal, or from the Ottawa River." ■



SILENT SIGNA

Three gauge wells along the Niagara River will "predict" its flow and permit closer regulation of water levels

BEFORE long, Ontario Hydro's Operations and Engineering staffs will know practically every variation in the Niagara River level almost as soon as it occurs.

These changes are key factors in the output of generating stations in the Commission's Niagara "power complex", which supplied 51 per cent of all the energy generated by Ontario Hydro plants during 1957.

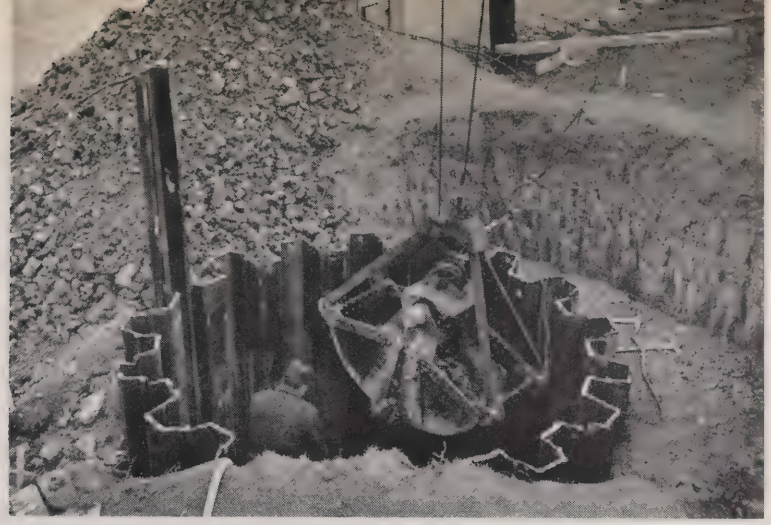
Hydro engineers would relish the ability to turn the river "on and off" for a few moments occasionally to give them an opportunity to measure every gallon of water. But there is little resemblance between the turbulent Niagara and a water pipe, so they must first gain a complete understanding of the river's flow patterns, and institute the most effective control measures at their disposal.

Thus, Ontario Hydro construction crews recently completed the installation of gauge wells, located at three strategic points between Chippawa and Fort Erie, Ont. Unimpressive in appearance – in fact literally "hiding their light under a bushel," – these three installations are designed to register every fluctuation in river level, and to "flash" it to the Commission's operating staff in the Regional Office at Niagara Falls.

Such minute-to-minute knowledge of water levels in the upper Niagara is essential to permit maximum utilization of the river's tumbling waters for power production purposes. This information, too, enables Ontario Hydro and neighboring United States utilities to more accurately maintain the minimum flows over the world-famed Niagara cataracts specified by the Niagara Diversion Treaty of 1950.

"King-pin" in the dual-purpose operation is the Grass Island Pool in the upper river, site of the intake works for major Canadian and United States generating plants. Such important Ontario Hydro plants as the Sir

by DON WRIGHT



EXCAVATION of "craters", 10 feet in diameter and 20 feet deep and braced by steel sheet piling, was necessary in constructing two of the new water gauges.

COMPLETION of the Grass Island Pool control structure last year has permitted better utilization of water available for power production purposes and more accurate maintenance of minimum flows over the Falls.



INSTRUMENTS for recording water levels along the river are housed in sturdy wooden superstructures.



Adam Beck No. 1 and No. 2 Generating Stations and the associated pumping generating station draw their water from the Pool.

Completion of the Grass Island Pool control structure by Ontario Hydro construction forces last year (see *Ontario Hydro News* – October, 1957) has made it possible to regulate the level of the Pool so that the flow available for power generation is more fully utilized, while the flow over the Falls is maintained at the amount specified in the Treaty.

Precise Operation

Installation of the three gauge wells, it is anticipated, will permit even more precise operation of the control dam. Readings from one of the new gauges located at Old Fort Erie will be telemetered directly to the Commission's Regional Office at Niagara Falls, and perhaps eventually to Head Office in Toronto. This gauge is possibly the most vital of the three installations since it will accurately indicate the water level of Lake Erie as it discharges into the Niagara River. This is of particular significance in power generation since the Lake Erie level at any particular time largely determines the amount of water that will be available at the plant intakes three to four hours later. Supplementing this information will be a continuous recording of river levels at Black Creek and Frenchman's Creek, sites of two companion gauges above the Grass Island Pool.

With these 'round-the-clock figures, Ontario Hydro's operating staff can foretell imminent changes in the river flow, and more accurately estimate the resulting flow into the Pool. (This additional accuracy is important as the results of their operations are scrutinized by the International Niagara Committee and the International Niagara Board of Control.)

Thus they will be able to regulate the level of the Pool by means of the

(Continued on page 24)



SUCCESS OF OTTAWA'S "tulip show" is attributed largely to the unique method of planting — called "the flowing mass display" — evolved by the Federal District Commission.





OTTAWA'S



"TULIPMANIA"

Canada's capital city welcomes spring with its annual outdoor flower show

THOUGH the citizens of Canada's capital city haven't yet approached the enthusiasm for tulips of the people of 17th Century Holland, who paid as much as $5,200 for a single bulb, they are showing signs of the Dutchman's "tulipmania."

This "disease" is the result of Ottawa's annual Canadian Tulip Festival, sponsored by the city's Board of Trade, to bring the Federal Government's million-plus tulips to the attention of all Canadians. The citizens, impressed by the magnificent public display, have taken to planting tulips in large numbers.

The result last Autumn — tulip planting time — merchants in the city couldn't keep up with the demand for bulbs, despite the fact that thousands of extra bulbs were shipped in as quickly as possible.

The capital city, already famous for its spring showing of tulips, this year will have more than ever to show the visitor. Spring will really have arrived when the flowers, in every color of the rainbow, are in bloom during the Canadian Tulip Festival from May 15 to 30.

Stars of the Show

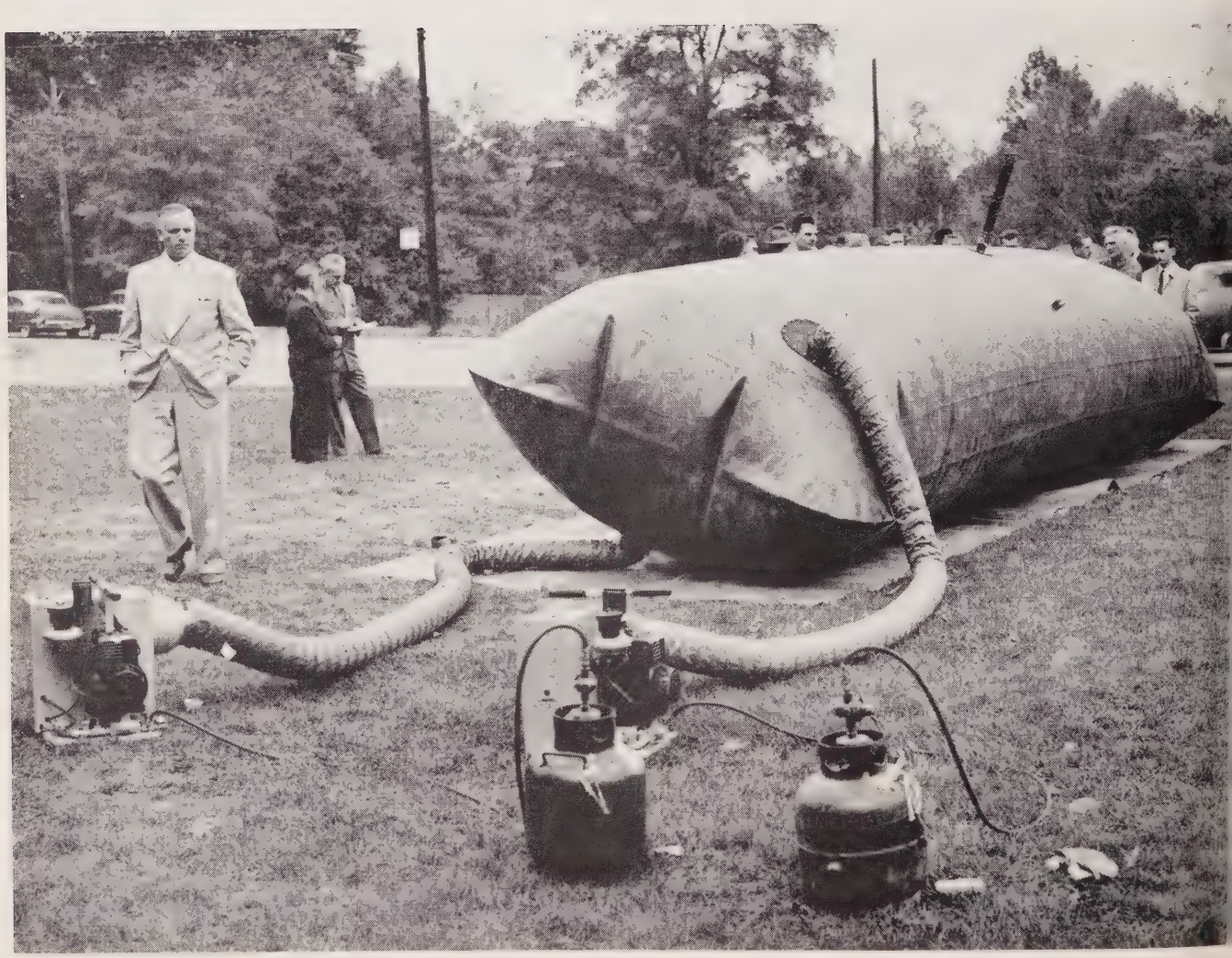
And though the hundreds of thousands of bulbs planted by private

(Continued on page 18)

PACHYDERM'S PILLOW

Collapsible oil storage tanks designed for use during transformer and circuit breaker maintenance

by Don Wright



It resembles a pachyderm's pillow when filled with oil!

It's Ontario Hydro's new collapsible oil storage tank – the latest in a long and impressive list of innovations and adaptations introduced by the Commission in its continuous search for better and more economical methods. Two of these giant rubber receptacles, similar to ones used successfully by the United States armed services as portable fuel depots, are presently being tested by the Commission as a possible means of storing oil during repairs to transformers and circuit breakers.

It has been customary during this type of maintenance operation to use either a tank truck, which must stand by for the entire repair period, or go through the laborious and time-consuming process of filtering the oil into drums. The new method, if found satisfactory, would greatly facilitate this process and eliminate the need for permanent oil storage tanks at the smaller transformer stations, which are not equipped with high voltage circuit breakers, and, therefore, do not have permanent oil-handling facilities. Under this plan, one of the collapsible tanks may possibly be located at each of the nine Regional headquarters.

The operating procedure is simple. Complete with ground cloth, the 5,000-gallon-capacity tank weighs only 385 pounds, and it is compact enough, when folded, to place in the back of a small truck for transportation to the site. The tank is equipped with special fittings, which permit easy coupling of the oil lines, while a small portable pump is all that is required to pump the oil from the transformer or breaker and to return it once the job has been completed.

Moving of Transformers

Hydro is also investigating the possibility of using these tanks for transportation purposes when transformers are being moved. In most cases, transformers must be emptied of oil to reduce their weight before they can be moved and, conceivably, the portable tanks could be used to convert ordinary trucks into oil tankers for short hauls of this nature.

Cleanliness is essential where transformer and breaker oil is concerned, for even a small quantity of water or other foreign matter can cause a failure in this type of equipment. The collapsible tanks offer no special problem in this regard since filters are easily fitted at the hose connections and the tanks themselves can be inflated with air, and cleaned from the inside in the usual manner. Entry is made through a "manhole" in the top of the tank. A special lining eliminates the usual destructive chemical reaction of oil on rubber.

Any chance bystander in the vicinity of the Toronto Bridgman T.S. when the first of these tanks was being inflated for demonstration purposes, must have felt certain the dirigible was making a comeback. He was actually witnessing another one of those projects which, in the aggregate, help keep his electricity bill among the lowest in the world and contribute substantially to his high standard of living. ■



DEMONSTRATION of the new collapsible oil storage tank at Bridgman Transformer Station in Toronto.



A MEMBER of the station's electrical maintenance staff examines the intake fitting of the 5,000-gallon rubber tank.

ING the demonstration the container was ted with air by portable blower units.

Nakina to "Live Better Electrically"

WARM WELCOME



"Live Better Electrically" – a slogan becoming increasingly familiar to every Ontario citizen these days – took on a new meaning for residents of Nakina on March 27 this year.

Marking a new chapter in the history of the remote northern community, the inauguration of Hydro service on March 27 was the occasion for an enthusiastic civic celebration.

Citizens recalled, for example, that the power supply had previously been so limited and expensive that such everyday conveniences as electric stoves, washing machines and water heaters were virtually unknown in this tiny hamlet on the C.N.R. transcontinental route about 175 miles northeast of the Lakehead.

For almost 30 years Nakina had been entirely dependent for its electrical requirements upon steam and diesel generating units operated by the railway – a service the company had never expected to provide. The inadequacy of this arrangement was forcefully brought home during the Christmas season last year when a stand-by generator, supplied by a public-spirited paper company, saved the day during one of "old faithful's" rare but often ill-timed breakdowns. Significantly, too, the diesel again broke down just a few hours before the ceremonies heralding the advent of Hydro service were scheduled to commence.

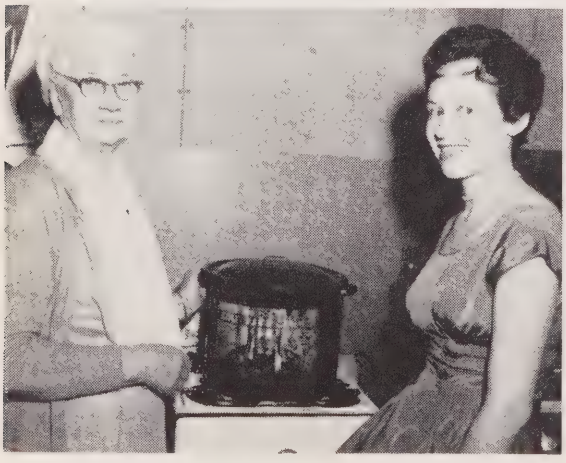
It only became economically feasible to provide service to Nakina last summer when a road was completed linking the community with Geraldton. Using the new road for access Ontario Hydro crews were at work, within a matter of months, constructing the necessary 42 miles of 7,200-volt distribution line. Nakina has a total population of approximately 700 persons and, at the outset, Hydro will provide service to some 230 customers through its Geraldton Operating Area.

The importance attached to the event by the citizens of Nakina was indicated by the number of residents, who crowded the curling rink and town hall to watch as A. J. Cichelly, Chairman of the Nakina Improvement District, and E. P. Burns, C.N.R. Superintendent at Hornepayne, threw the switch effecting the transition from diesel to hydro-electric power. Other officials participating in the ceremonies included G. C. Wardrope, M.P.P., Port Arthur; William Grant, Chairman of the Nakina Chamber of Commerce, Mayor Benny Pressman and a 40-man Chamber of Commerce delegation from Geraldton. K. N. Bodkin, Consumer Service Engineer, Northwestern Region, and A. E. Chadwell, Manager of the Geraldton area, officially represented Ontario Hydro.

Mr. Wardrope forecast a promising future for this section of Ontario's

(Continued on page 18)

BIDDING a happy farewell to the era of old-fashioned kitchen utensils and looking forward to the use of modern electrical appliances in their homes, Mrs. Aina Siron (left) and Mrs. Carol Brouse were among the Nakina housewives who eagerly celebrated the inauguration of Hydro service in the community.



AMONG the chief participants in the ceremony were, left to right: George Wardrope, M.P.P., Port Arthur; E. P. Burns, C.N.R. Superintendent, Hornepayne; Anthony Cichelly, Chairman, Improvement District of Nakina (who actually threw the switch to bring Hydro to the community), and Hydro Line Construction Superintendent Ray Fournier.



MODEL PUPILS



ALMOST 100 Grade 8 pupils at Bedford Park Public School in Toronto played some part in building this 10-foot-long model of the St. Lawrence Seaway and Power Project. The boys shown here are demonstrating the detachable features of the model, one of their major Industrial Arts projects during the present term.

If the Grade 8 pupils at Bedford Park Public School in Toronto know more about the St. Lawrence Seaway and Power Project than their parents do, it's because they have all had a hand in building it — to scale, of course, and with wood and plaster as their medium.

More than 100 members of the Industrial Arts Classes played some part in the project, which involved the construction of a 10-foot long model representing the many features of the seaway and power development, as well as comprehensive oral and written assignments. The idea was conceived by their instructor, Thomas Aldcorn, during a visit he made to the St. Lawrence area last summer, and it grew to its present proportions as a result of the interest displayed by the pupils themselves.

The first step in its actual execution was the freehand drawing of a map depicting the 47-mile section of the river from Prescott to a point just below Cornwall. This preliminary study revealed the need for a more detailed guide. After a film presentation and lecture by a representative of Ontario Hydro's Information Division, the model was built on a scale of 2,000 feet to the inch from maps made available by the Commission. The general profile of the model was outlined in wood stripping while the intervening terrain was built up with a composite plaster material.

Principal Features

All the principal construction features of the St. Lawrence development, including the dams, powerhouses, canals, locks, and even the towns affected by the rehabilitation program, have been reproduced in such a way that they can readily be detached from the model. By their removal, and the replacement of those pieces representing channel excavations and old town sites, the river can quickly be restored to its original state. This will assist the pupils to demonstrate their model before the various senior classes and on such occasions as the annual "Parents' Night."

In addition, a descriptive tape recording, based upon material now being assembled for the preparation of written and oral assignments, will supplement the demonstrations. Considering the pupils' ages, these assignments are formidable undertakings in themselves. For example, one assignment is concerned with the history of negotiations between Ontario Hydro and the Power Authority of the State of New York, leading up to the inauguration of the St. Lawrence Power Project, while in another the pupils will prepare an analysis of domestic and industrial power costs in the Toronto area. The relative economies of hydro-electric and thermal-electric power production is another field the pupils have been asked to explore.

Aside from its value as an Industrial Arts project, the Bedford Park scheme has proved informative from the standpoint of current events and helpful as a means of encouraging team work. It is a further indication of the degree to which the St. Lawrence Seaway and Power Project has captured the imagination of the people of Ontario at all age levels. ■

OTTAWA'S "TULIPMANIA"

(Continued from page 13)

home-owners will add to the striking display, once again it will be the tulips planted by the Federal District Commission which will be the "stars" of the show.

The government's tulips follow close on the heels of a million daffodils and 600,000 crocii and, in fact, the daffodils are often still blooming during the Tulip Festival. Most of the daffodils are planted in a three-acre field in Rockcliffe Park, making an outstanding show as they undulate in carpet-like fashion over hills and dales.

The tulips, however, are the flowers, which provide the show that attracts thousands of visitors to the capital. Planted not only to please the flower-fancier, but also the person who doesn't know one end of a tulip bulb from the other, some 200 varieties add a kaleidoscope of color to the new-green freshness of trees and lawns throughout the city.

The best place to see the tulips is along the FDC's 33-mile Driveway system where beds range in size up to 75,000 bulbs, but the visitor won't want to miss the 50,000 tulips on Parliament Hill or others around the National War Memorial, in parks and around famous public buildings.

Biggest on Continent

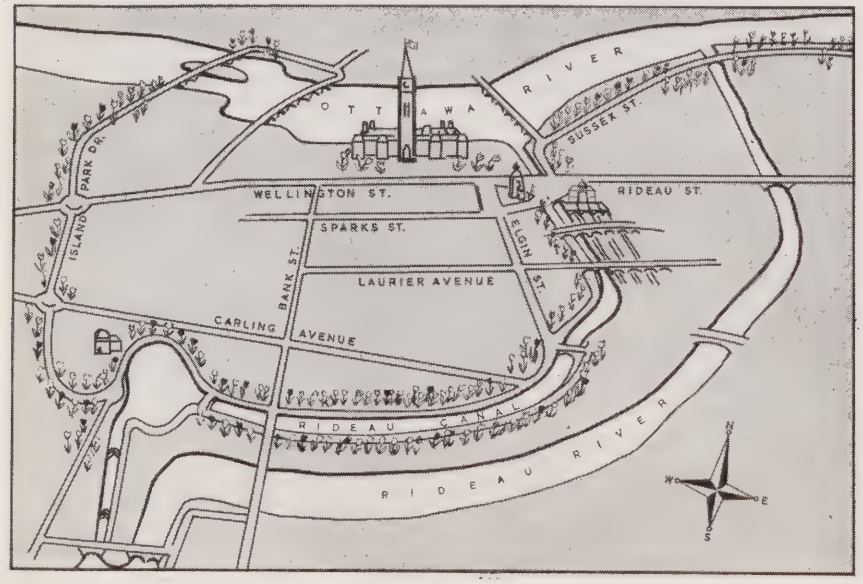
But to speak of numbers — it is the largest public showing of tulips on the continent — is to speak of only half the reason why Ottawa's tulips attract such wide attention. The rest of the story is in the method by which they are displayed. Called the "flowing mass display" — it was developed by landscape architects of the FDC, and is unique to the capital city.

Proof that it is successful is the fact that there were almost as many tulips in Ottawa before World War II as there are now — but not even old-time citizens of the capital realize this. Before the war, the tulips were planted just as they were in Victorian times — in circles, clocks, crescents, stars or other small intricate designs. And these beds were usually hidden away where only a dedicated flower-lover could find them.

The "flowing mass display" has brought the flowers out into the open. And instead of dispersing the effect through many small beds, the flowers have been massed in huge plots, set where they can easily be seen — on slopes at eye-level and at curves on the road — just right for viewing by pedestrians or motorists. Nor is there any longer a hodge-podge of colors. Most beds show only one great splash of solid hue, although sometimes a second or third color is added for accent. In some beds a very carefully chosen mixture of contrasting colors adds a delightful variation to the scene.

Ottawa's tulips are rapidly becoming famous all over the continent as a prime tourist attraction. As they are the property of the Canadian Government, they really belong to all Canadians. ■

THE "TULIP ROUTE" in Canada's capital city boasts 29 main beds of the colorful spring flowers — largest display in North America.



WARM WELCOME

(Continued from page 16)

northland, and expressed the view that Hydro would bring "untold benefits" to the economy in general and to the housewife in particular. He read messages of congratulations from Prime Minister Leslie M. Frost and Hon. Ray Connell, M.P.P., Ontario Hydro's 2nd Vice-Chairman at that time.

The extent of the Commission's vast postwar expansion program in northwestern Ontario was outlined by Mr. Bodkin. He said that power demands in the Commission's Northwestern Division had increased 220 per cent in the last 10 years. "By 1961", he continued, "with the completion of all seven power developments now underway in northwestern Ontario, approximately 304,000 kilowatts will have been added to the existing resources of this division — a phenomenal increase of more than 80 per cent within four years."

Mr. Bodkin also described the program of rural electrification in northwestern Ontario. By the end of 1957, 11,904 rural customers were being served over 1,944 miles of distribution line. He voiced confidence that the program would again be pressed forward in 1958.

Following the formal ceremonies, Nakina residents and their guests celebrated the dawn of a brighter era with a dance and social evening. ■

TIME MARCHES ON!

WHEN the citizens of Cornwall, Ontario, learned a few years ago that the city was to have a fine new post office, they greeted the tidings with mixed emotions. No tears were shed over the loss of the old-fashioned building itself, but the clock in the tower above was a different matter.

During its 69-year vigil at the corner of Pitt and Second Streets, the timepiece served as a direction post for strangers, a rendezvous for the townsfolk, and a time check for everyone within sight of its friendly, round face. When the postal building was razed to make way for the handsome new St. Lawrence Seaway Authority headquarters now standing in its stead, the clock naturally disappeared with it.

Today, the last traces of nostalgia have vanished, and citizens, conditioned over the years to glancing skyward at the main intersection, are admiring a new timepiece. Work is completed on the construction of a new clock which has been installed at the top floor level of the Seaway building.

Aside from its function, the new timepiece has little in common with its predecessor. Modern in every aspect, it is electrically-operated, and equipped with a device for resetting itself at the correct time in the event of a power failure. A thermostat keeps the motor at a constant temperature in the interests of accuracy.

In spite of its greater dial area, the new clock, including fixtures, weighs only 1,300 pounds – about the same as the weights and pendulum alone of the old one – and its working parts occupy only a fraction of the space formerly required for this purpose.

But whether it will remain in operation as long as its venerable predecessor only "time will tell." ■

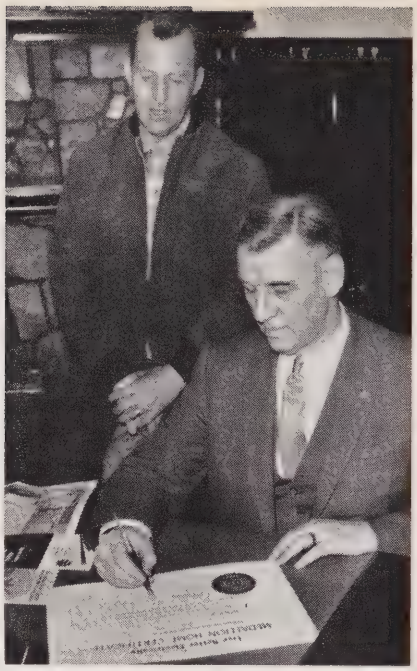
LITERALLY a bird's-eye view of Cornwall's main thoroughfare, Pitt Street, through the steel grill forming the face of the new clock.



SITUATED at one of Cornwall's busiest intersections, the new headquarters of Canada's St. Lawrence Seaway Authority, with its modern clock, is a welcome addition to the eastern Ontario city's commercial district.



SYMBOL OF EXCELLENCE



GENERAL MANAGER G. R. DAVIS, Kingston P.U.C., endorses the first Canadian Medallion Home Certificate presented to Kingston electrical contractor, Earl L. Moore, standing.

MR. MOORE discusses the wiring blueprints with the proud new owners, Kingston Commissioner J. R. Carter, his wife and son.



COMMISSIONER J. R. Carter, Kingston Public Utilities Commission, has won the distinction of owning the first "Medallion Home" in Canada. This means that Mr. Carter and his family occupy a new residence, which conforms, in every respect, with a new Canadian standard of electrical living.

In the next few months, however, it is anticipated that several hundred fine homes across the country will bear this bronze symbol of electrical excellence as the extensive Medallion campaign, backed by all facets of the electrical industry, swings into full stride.

To qualify for this permanent "seal of approval," a new home must have full housepower. In other words it must meet the minimum Red Seal requirements specified by the Electric Service League of the province in which it's located, i.e., have outlets and switches for all living areas, as well as capacity for today's "peak loads" and tomorrow's expected growth. (The Electric Service League of Ontario, for instance, specifies a 100-ampere service as the minimum requirement for a single dwelling in qualifying for the Red Seal rating).

"Conditioning" Requirements

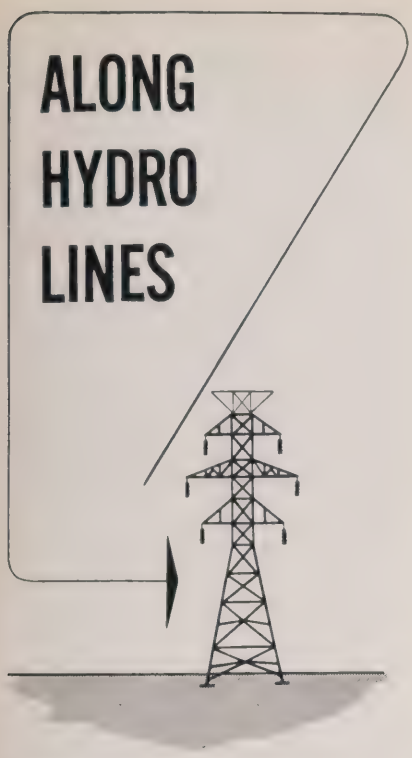
A Medallion Home, in addition, must be "conditioned" for light and appliances. In meeting the appliance conditioning specification, provision must be made for a circuit (and outlet where required) to serve each of the following electrical appliances: range, refrigerator, clothes washer and clothes dryer, with appropriate circuits to serve any two of the following appliances: water heater, dish washer, freezer and air conditioner. At least one of these eight appliances must be installed before the buyer takes over the new home from the building contractor, at which time the Medallion award is made.

To qualify for the Medallion, a home must also meet minimum light conditioning requirements, which apply to every activity centre, including the garage and outside area. Decorative lighting is taken into consideration as well as adequacy, and the requirements also stipulate the type and location of switches, shielding to prevent glare, and the installation and capacity of fixtures.

Described as the largest single promotion of its kind ever undertaken

(Continued on page 23)

ALONG HYDRO LINES



Thorold P.U.C. Plans to Replace Building

Thorold P.U.C. is proceeding with plans to rebuild its headquarters destroyed during a two-alarm fire on March 6 this year. The services of an architect have been retained to prepare plans for the new structure to be located on the site of the former building and construction started on May 1. At present the administrative staff of the utility is occupying temporary accommodation in the local post office building.

New Falls Lights Ready by June 20

Plans are proceeding for installation of new electrical equipment to illuminate the Horseshoe and American Falls at Niagara. At a recent meeting of a sub-committee of the Niagara Falls Illumination Board (composed of representatives of Ontario Hydro, Niagara Falls, Ontario, and Niagara Falls, N.Y., and Ontario's Niagara Parks Commission), Maxim T. Gray, Manager and Secretary-Treasurer of the Niagara Parks Commission, reported he had received assurance that the new installation would be ready for service by June 20 this year.

Name Manager At Zurich

Former trustee of the police Village of Zurich, Milfred Schilbe was recently named Manager of the local Hydro system, succeeding Gordon Hess. Mr. Schilbe will also manage the local water system.

Former Secretary Dies

John T. Park, first Secretary of Hagersville Hydro-Electric Commission — a post he held for 30 years, died in Hagersville recently in his 90th year.

Galt P.U.C. Names Assistant Manager

John F. Rousom, a former employee of Ontario Hydro, has been appointed Assistant Manager of Galt P.U.C. Born and educated in Toronto, Mr. Rousom attended Jarvis Collegiate Institute, graduating from the University of Toronto as an electrical engineer in 1949.

During his association with the Commission he was employed as a negotiator with the Frequency Standardization Division.

Married and the father of two children, the new utility executive is a member of the Association of Professional Engineers. He served for four years with the R.C.A.F. as a radar technician during the Second World War.



J. F. ROUSOM

P. B. Yates Passes In California



P. B. YATES

Word has been received of the recent death in California of P. B. Yates, who retired as Manager of St. Catharines P.U.C. in 1947. Mr. Yates was originally employed with the Commission's Municipal Department, but went to St. Catharines in 1914 to supervise installation of that city's electrical system, and remained as manager. He was the first President of the A.M.E.U., serving in that capacity from 1909 to 1916 and the first person to be named an honorary member of the association.

Manager Resigns at Grand Valley



ALFRED MENARY

Alfred Menary, Manager and Secretary-Treasurer of Grand Valley Hydro System for the past 27 years, resigned recently from that position.

Born in 1884 in Amaranth Township, Mr. Menary has taken an active interest in civic affairs, having been Reeve of Amaranth Township in 1918, when he also served as Warden of Dufferin County. In 1916 the Village of Grand Valley purchased the electric plant of John Phillips, and signed a contract with Ontario Hydro. Later Mr. Menary became Secretary-Treasurer of the Grand Valley Public School and District High School Board.

In 1930 he was appointed as Manager and Secretary-Treasurer of the local Hydro system and served continuously until his recent retirement. In addition, he also engaged in private business, including an insurance agency, for several years.

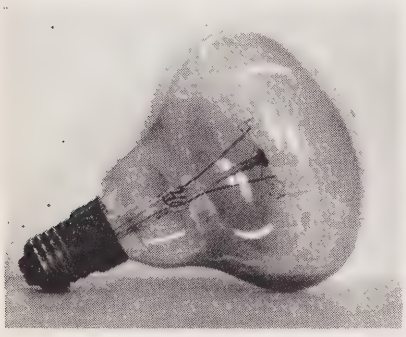
Uxbridge P.U.C. Secretary Resigns

George J. Storey retired from his position as Secretary of Stouffville P.U.C. on April 1 this year.

Mr. Storey served as a Stouffville civic employee for 27 years, having been employed as municipal assessor and Clerk-Treasurer. He served from 1941 to 1953 in the latter capacity until his appointment as secretary.

Appoint James H. Page Trenton P.U.C. Manager

James Page, Manager of Renfrew Hydro Electric Commission since 1952, recently tendered his resignation to assume the Managership of Trenton P.U.C. He succeeds Clare Campbell, who recently accepted a position with Ottawa Hydro. Fernand (Joe) Beauchamp, Kingston, has been named as Manager at Renfrew. Mr. Beauchamp, a former employee of Ontario Hydro in the Eastern Region, was Relay and Meter Superintendent of Kingston P.U.C. before his latest appointment.



40-YEAR VETERAN RETIRES

This lamp first lighted the stockroom of a shoe store at Simcoe, Ont., in 1915 – the year Hydro service was inaugurated in that municipality. The 40-year-old bulb was owned by W. H. Unwin, who recently presented it to Simcoe P.U.C. Manager W. D. Stalker. The lamp gives no indication of its wattage rating, except for the number 40 shown on the stamen, and is believed to be of Swedish manufacture.

New Power Supply Facilities For Kingston-Belleville Area

Construction of a new Ontario Hydro transformer station and high-voltage transmission line facilities to provide adequate power supply for the rapidly growing needs of the Kingston-Belleville area have been announced by the Commission. The estimated net cost of the program is $2,641,250.

While these facilities will be required to meet loads in 1959, the Commission has also taken steps to improve the supply to the area this year by making temporary connections to provide a 115,000-volt circuit from the new St. Lawrence Transformer Station to the Frontenac and Belleville Transformer Stations, and by advancing its original transmission line construction schedule by one year.

The new transformer station announced recently will be built in the Kingston area, and 16 miles of 230,000-volt circuit steel-tower line will be erected from Hinchinbrooke switching station to the new station. In addition, 6.5 miles of 115,000-volt double-circuit steel-tower line will be built from the Kingston area station to the existing 115,000-volt circuit running from Frontenac T.S. to Belleville T.S. The transmission lines are scheduled for service by October 1, 1958, and the transformer station by September 1, 1959.

Chesley Revenue Shows Increase

Increased revenue during 1957 was reported by George W. Grabb, Manager and Secretary-Treasurer, Chesley P.U.C., in presenting his annual report recently. Revenue last year totalled $54,388, with the utility's Hydro Department showing a net profit of $4,248 on the year's operations.

Mr. Grabb indicated that electrical customers had increased from 610 to almost 700 in 10 years, with each class of customer registering substantial gains in average monthly energy consumption.



C. L. LEACH

Chatham Appoints Assistant General Manager

Appointment of C. L. Leach as Assistant General Manager of Chatham Public Utilities Commission has been announced by R. S. Reynolds, General Manager and Secretary. In addition to his new duties, which he assumed on April 1 this year, Mr. Leach will continue to serve as Engineer with the utility.

Mr. Leach has been associated with the Chatham Commission since 1949. A graduate of Queen's University in 1948 in electrical engineering, he joined the Ontario Hydro staff and worked for several months in the Meter and Relay Department of the Western Region.

Born in the Ottawa Valley at the now-famous Village of Chalk River, Mr. Leach received his early education there and at Pembroke. Since going to Chatham he has taken an active interest in civic affairs, being a Past President of the Junior Chamber of Commerce. He has been awarded one of the highest honors that the "Jaycees" can bestow on a past president – that of a "J.C. International Senator" (a world organization) of which there are 1,500. Married, Mr. Leach is a member of St. Andrew's United Church at Chatham, and is, at present, playing an active part in the regional A.M.E.U. work.

Professional Engineers Name General Secretary

Leopold Maurice Nadeau, P. Eng., Montreal, has been appointed General Secretary of the 32,000-member Canadian Council of Professional Engineers, C. N. Murray, P. Eng., of Sydney, N.S., Council President, announced recently.



L. M. NADEAU

Mr. Nadeau will make his headquarters in Ottawa. In his new capacity, he will co-ordinate the activities of the engineering licensing bodies of which there are 11 — one in each province and one in the Yukon. The council deals with all matters affecting the engineering profession at the national level. The C.C.P.E. is the national body for all provincial engineering associations. Its 12-man directorate includes one representative from each association.

Lindsay Bills New and Lower

Customers of Lindsay Hydro-Electric Commission have been receiving some surprises in recent weeks — and they were pleasant ones! Their bills, lower since the new rate schedule was introduced in January this year, are now mailed without an envelope, thus reducing office work and mailing costs.

Former Brampton Mayor Passes

W. J. Abell, a former mayor of Brampton, died recently. Born at Owen Sound, the deceased was a well-known druggist, operating stores at Brampton and Malton. Active in civic affairs, he served as Chairman of Brampton Hydro Commission for 19 years.

Staff Occupies New Regional Building

Ontario Hydro staff of the East Central Region recently moved into the Commission's new regional headquarters on the eastern outskirts of Belleville. The official opening of the new building, which is similar in design to new regional structures established at Hamilton, North Bay and Ottawa, will be held on May 29 this year.

25-year Service Recognized

David N. Durward, Galt P.U.C. Manager, was presented with an inscribed wrist watch recently by Chairman Duncan McIntosh to mark 25 years' service with the Utility.



TOO MUCH WATER

Work on the Kariba hydro-electric project (described in the February, 1958 issue of *Ontario Hydro News*) was suspended recently when Africa's rain-swollen Zambesi River poured over the top of the cofferdam where workmen were placing concrete for the foundations of the main dam.

The Southern Rhodesia project is scheduled for completion by January, 1961. (A.P. photo.)

Listowel P.U.C. Presents Awards

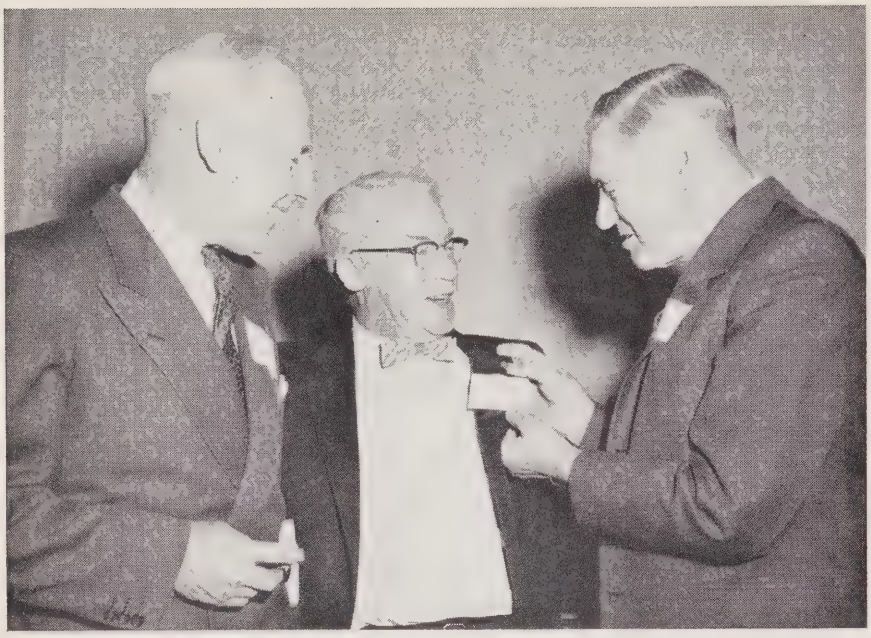
Listowel P.U.C. recently awarded prizes to winners of essay contests in local elementary and secondary schools. The contest was held as a feature of this year's observance of National Electrical Week sponsored throughout the province by the Electric Service League of Ontario. Over 400 entries were submitted in the Listowel District High School contest. Cash awards of $25, $15 and $10 were presented by the utility. Three winners received awards of $15, $10 and $5 in the elementary school contest which attracted 42 entries.

SYMBOL OF EXCELLENCE

(Continued from page 20)

on this continent, the Medallion Home is an important aspect of the "Live Better Electrically" campaign instituted by the Canadian electrical industry. This country-wide promotional program, under the direction of the Canadian Adequate Wiring Bureau's Institute of Electrical Living in Toronto, is being supported by the utilities, electrical manufacturers, contractors and retailers. The Medallion award plan makes use of newspapers, leading trade and consumer magazines, and national radio and television programs. Special literature is being supplied to architects and builders, while other promotion mediums include home shows and various other types of exhibits. The home buyer is provided with a Medallion certificate, and each house that meets the Medallion standard will be identified by a small metal plaque, and an illuminated house number of special design if desired.

By establishing a quality standard for the entire electrical installation in today's modern home, the Medallion program is designed to not only further the cause of the electrical industry, but to provide the people of Canada with the basis for safe, convenient and efficient electrical living, now, and for many years to come. ■



JOIN 40-YEAR RANKS

Four staff members were admitted to the 40-year ranks of the Toronto Hydro Quarter Century Club during the recent 30th annual banquet. In recognition of their lengthy service, Toronto Hydro Chairman Bert Merson presented the coveted pins to Norman Ellis and William K. D. Sutherland. Also qualifying but unable to attend this year's gathering were two lady staff members, Misses Irene Christian and Effie Jewell. For the first time in the history of the club, no new 25-year employees were welcomed into the membership. During the dinner a brief tribute was paid to the memory of seven active and 21 retired club members, who had passed away during the year. Mayor Nathan Phillips addressed the gathering briefly, followed by an enjoyable entertainment program with President George Baird acting as master of ceremonies. In the accompanying photograph, Mr. Sutherland (left) and Mr. Ellis (centre), the two new 40-year members, receive congratulations from Mr. Merson.

SILENT SIGNALS

(Continued from page 11)

13 sluice gates in the associated control structure, ensuring first that flow over the Falls conforms to the seasonal limits specified by the Niagara Diversion Treaty, and secondly that virtually every cubic foot of water not required for the Falls may be diverted into the generating plant intakes on both sides of the river, and thence through the turbines of the plants themselves.

The construction of the three permanent recording installations was in itself something of an engineering feat. Aside from the recording instruments, each consists, basically, of a well almost 20 feet deep and about six feet square, adjacent to the river bank. Near the bottom of the well a three-inch pipe extends horizontally out into the river bed, breaking into the water at least five feet below the low water level. The wells are of reinforced concrete, and the instruments are housed in wooden superstructures.

The gauge wells at Black and Frenchman's Creeks were built in clay soil, which involved driving 10-foot diameter rings of sheet piling down to depth and excavating the interiors. Special equipment, including a 100-ton-capacity hydraulic jack, was used to extend the pipes from the bottom of the caissons out into the river bed for a distance of about 100 feet.

Complicated Task

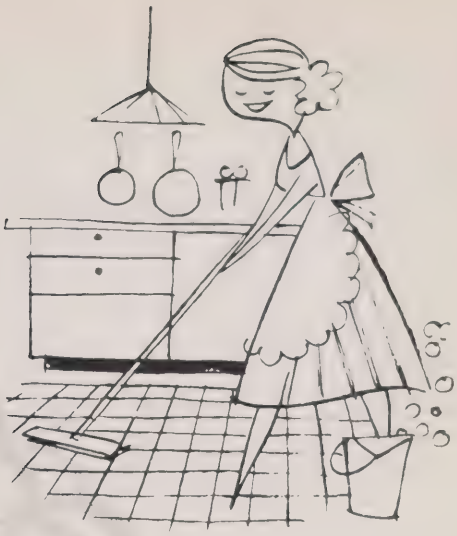
Solid rock at the site of the Fort Erie gauge complicated the task of installing the horizontal intake pipe which, in this instance, had to be extended for almost 300 feet by diamond drilling. To accommodate the drill it was first necessary to dig a 20 x 12 foot excavation to the proper level. Further difficulties, in the form of a flint-like rock known as "chert", were encountered as the work progressed, and frequent surveys were required to keep the drill on course.

The actual construction of the three gauge wells has now been completed, and it only remains to obtain delivery of certain of the instruments before they will be set to work, ceaselessly reporting every variation in the river level.

Meanwhile, the benefits of the Niagara Remedial Works, which were inaugurated with suitable ceremonies in September, 1957, are presently being realized. This two-part improvement and conservation program included extensive filling and excavation work on both flanks of the Horseshoe Falls, as well as the construction of the 1,550-foot Grass Island Pool control structure extending from the Canadian shore.

The Remedial Works have substantially reduced the rate of an alarming erosion process, which had caused the Horseshoe Falls to recede more than 865 feet since records were first kept in 1764; they have contributed to the scenic effect by producing an unbroken crestline at the Horseshoe Falls and have ensured an adequate flow over both cataracts at all times; and at the same time, they have made possible an even more effective use of the water for power purposes. ■





HOT WATER

FOR ALL YOUR NEEDS





with a

FLAT RATE AUTOMATIC ELECTRIC WATER HEATER

You can enjoy the convenience of plenty of hot water for only a few cents a day with special Hydro flat rates.

There is an electric hot water heater in a size and capacity just right for your family's needs—with abundant storage capacity and quick recovery when more hot water is needed.

If planning to change the present method of heating water in your home, be sure to discuss your needs with your local Hydro office.

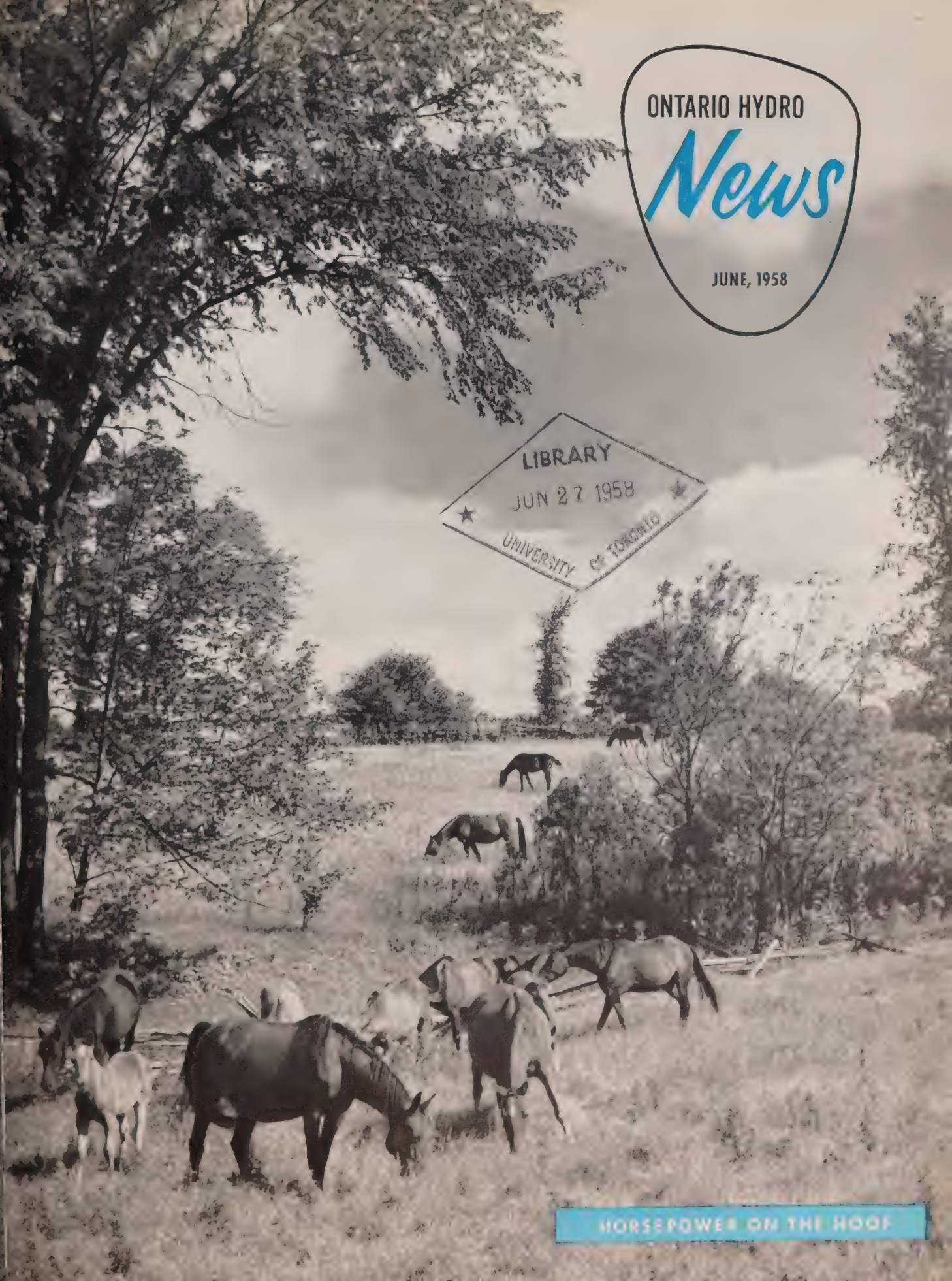
Get complete information about the economical Hydro flat rates available to you.

live better ELECTRICALLY

the safe, clean, modern way!

(Sample advertisement — mats available to the associated municipal utilities for use in local "Live Better Electrically" campaigns.)


Spring Carpet



ONTARIO HYDRO News

JUNE, 1958

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HORSEPOWER ON THE HOOF

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ONTARIO HYDRO NEWS

JUNE, 1958 VOL. 45, NO. 6

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COVER PHOTOGRAPHS

Saluting Ontario's numerous tourist attractions, our front cover this month depicts a peaceful rural scene near Peterborough, Ont. The back cover photograph (reproduced through the courtesy of the Ontario Department of Travel and Publicity) catches a gripping moment in the life of a young fisherman while pursuing the speckled beauties in the rapids between Donald and Rostual Lakes in northern Ontario's Red Lake area. For further information on travel this season see "Canadian Panorama" on page 6.

HON. ROBERT W. MACAULAY, Q.C., M.P.P., APPOINTED SECOND VICE-CHAIRMAN

A MEMBER of a prominent Toronto family, Robert W. Macaulay, Q.C., M.P.P. (Riverdale-Toronto), has been named Second Vice-Chairman of Ontario Hydro. In announcing several changes in the Executive Council of the Ontario Legislative Assembly recently, Prime Minister Leslie M. Frost said Mr. Macaulay, who was also appointed Minister without Portfolio and a member of the Treasury Board, would succeed Hon. Ray Connell, now Minister of Reform Institutions. Mr. Connell became Minister without Portfolio and Second Vice-Chairman of the Commission in 1956.

Mr. Macaulay's appointment to the Ontario Cabinet maintains a tradition of public service established by his father, Leopold Macaulay, a former Provincial Secretary and Minister of Highways.

Ontario Hydro's new Second Vice-Chairman was born in Toronto on May 25, 1921, and was educated at Upper Canada College and the University of Toronto from which he graduated as a Bachelor of Arts. He attended Osgoode Hall Law School in Toronto and was called to the Ontario Bar in 1948. Six years later, in April 1954, he was created a Queen's Counsel at the age of 31, being one of the youngest men in the British Commonwealth to earn this distinction.

Mr. Macaulay has been associated with the well-known Toronto legal firm of McLaughlin, Macaulay, May and Soward, and has lectured at the University of Toronto Law School. He is noted as the co-author of a legal text book, Mechanics Liens (Macaulay and Bruce) and the author of several published articles on legal subjects. He holds the rank of Captain in the Canadian Active and Reserve Army.



ONTARIO'S Lieutenant-Governor, Hon. J. Keiller Mackay (left) and Prime Minister Leslie M. Frost witness Mr. Macaulay's signature on the oath of office during the "swearing-in" ceremony.

First elected to the Ontario Legislature in 1951 to represent the riding of Riverdale-Toronto, Mr. Macaulay was re-elected in 1955 with an increased majority. In subsequent years he has taken an active role in the work of several select committees appointed by the Ontario Government to study specific subjects, having served as chairman of one committee and as a member of four others. ■

Colombo Plan makes headway in providing



ONTARIO HYDRO NEW

AID FOR ASIA



Turbo-generators from Ontario Hydro stations destined for key functions in Pakistan's development

by Peter Maitland

A CRACK diesel locomotive bearing the name of a Canadian province on its stubby nose roars into a station of Ceylon's government railway system; 1,500 miles east across the Bay of Bengal, in a school equipped by Canada, a group of Burmese students listen attentively to a Canadian instructor lecturing on the maintenance of farm equipment; and in northern Pakistan, near the storied Khyber Pass, a young Canadian engineer sits down to breakfast with his family before beginning another day of work on a $65,000,000 hydro-electric and irrigation project.

These are just a few of the visible signs of Canada's participation in the Colombo Plan, which is bringing to the free peoples of south and southeast Asia a knowledge of the capabilities and products of Canadian industry.

At the ninth meeting of the Colombo Plan Consultative Committee in Vietnam last October, the Canadian delegate announced that this country's contribution to the Plan during 1958-59 will be increased to $35,000,000, bringing to more than $231,000,000 Canada's total contributions since the project was started in 1950.

In the eight years since the scheme was set up to prime the economic pump for the member Asian nations, Canada has been engaged in 67 capital projects in the area; has made the skills of nearly 100 technical advisers available, and has provided training in Canada for more than 600 scientists and scholars from the member countries.

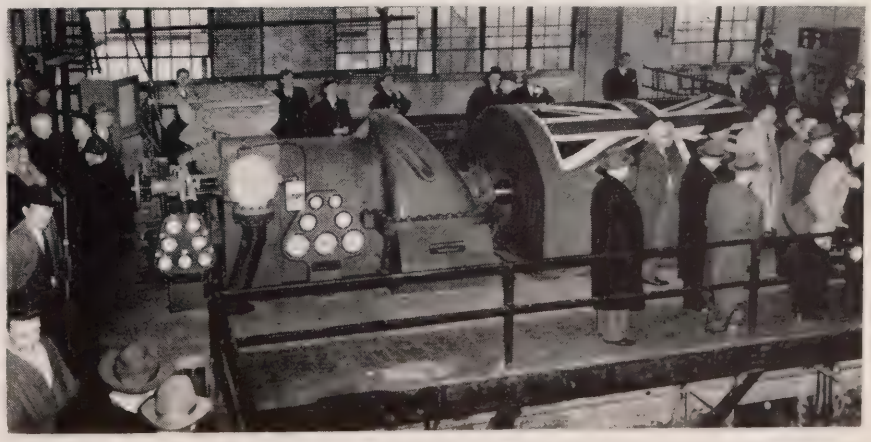
Member Nations

The Colombo Plan (full title: The Colombo Plan for Co-operative Economic Development in South and Southeast Asia) had its origin and took its name from a meeting of Commonwealth prime ministers held in Colombo, Ceylon, in 1950 to discuss ways and means of assisting the

(Continued on page 4)



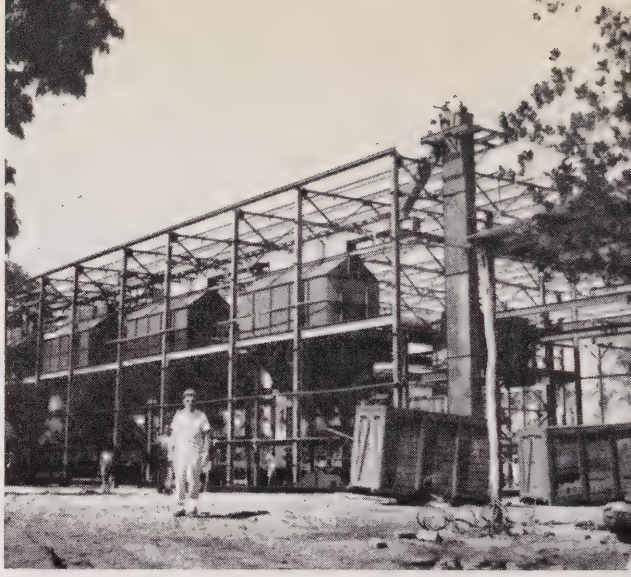
PLACED in service at Ontario Hydro's emergency Hamilton Steam Generating Station on November 23, 1949, the 5,000-kilowatt unit shown below is one of the two units shipped from this plant to eastern Pakistan for the Ganges-Kobadak Steam Station (above).



RSAK, near Pakistan's famous Khyber team of 134 Canadian specialists are g a work force of 7,000 men engaged hydro-electric and irrigation project.

FIRST Ontario Hydro emergency plant, the Scarboro Steam Generating Station on Toronto's waterfront (below) started operation in November, 1949. The building and four 5,000-kw. units are being reassembled as Pakistan's Goalpara Steam Station (right).





economies of underdeveloped Asian nations.

The original membership consisted only of Commonwealth countries but other countries were later invited to take part. The 19 members are: Australia, British Borneo, Burma, Cambodia, Canada, Ceylon, India, Indonesia, Japan, Laos, Malaya (Malaya and Singapore), Nepal, New Zealand, Pakistan, The Phillippines, Thailand, United Kingdom, United States and Vietnam.

The plan is not primarily an aid program. It is the sum of the development programs of the member Asian nations, plus the aid programs of the other member countries. The major burden of economic development is carried by the Asian countries themselves, and includes transport, communications, agriculture, housing, health, education, mining, fuel and power.

The plan, in both its capital assistance and technical co-operation aspects, works this way: first, the Asian government concerned suggests certain projects considered suitable for Canadian assistance. The Canadian Government then examines the projects, and decides the pattern of its participation.

Although this country's contributions cover a wide variety of projects, Canadian assistance is generally directed along lines of endeavor which draw on experience gained in the development of its own vast resources: the generation and distribution of electric power, the development of transportation and communication facilities, aerial and other surveys, and the peaceful uses of atomic energy.

Irrigation — Power Project

The Warsak hydro-electric and irrigation project in Pakistan is the largest development in which Canada is engaged at the present time. A team of 134 Canadian engineers and technicians live with their families at the project site. The Canadians supervise a Pakistani work force of 7,000. When completed, the Warsak Dam is expected to irrigate about 100,000 acres of land in addition to supplying power for the surrounding region.

Canada has also engaged in fisheries projects in Ceylon, hydro-electric developments, pest control and the planning of experimental farms in India and Pakistan, and has supplied Ceylon's government railway with new diesel locomotives. The diesels are named after the Canadian provinces, and carry a plate with their name and the inscription "Colombo Plan Aid — From Canada."

Near Bombay, India, buildings are under construction to house the



PAKISTANI WORKMEN at the Warsak power-irrigation project are accommodated in these modern married and single quarters provided by Canada's Colombo Plan Administration.

Canada-India atomic reactor. Structural steel for the project was fabricated in Canada and the reactor core was built in Montreal. The cost is being shared about equally by the governments of India and Canada, and when completed the reactor will be used for the development of fuels and materials for use in nuclear power reactors and for the production of radioactive isotopes for industrial, medical and scientific applications. The entire project was designed by a Canadian consulting firm, and construction is under the supervision of a Canadian contractor.

Two thermal-electric plants now under construction in eastern Pakistan are of special interest to Ontario Hydro since the equipment for these projects was once used to generate electricity for the Commission in Toronto and Hamilton.

Late in 1949 and early in 1950

emergency steam generating plants were put into service at Toronto, Hamilton, Thorold and Chatham to help cope with expanding power demands.

After the Commission's Richard L. Hearn and J. Clark Keith thermal-electric stations in Toronto and Windsor went into service in 1951, the need for the emergency stations gradually diminished, and several years later they were offered for sale.

Purchase Turbo-generators

The Canadian Government decided to buy the Toronto (known as the Scarboro Generating Station) and Hamilton plants and two of the three turbo-generators at the Thorold station as part of Canada's contribution to the Colombo Plan.

The government purchased the Scarboro Steam Generating Station in Toronto, including four 5,000-kilowatt units and the building which housed them. Dismantling was completed in February, 1957, and 375 crates, the largest 50 feet long and the shortest six feet long, were used to ship the equipment and building structure.

The entire Scarboro plant was shipped to the Khulna district of eastern Pakistan where it now is being re-erected as the Goalpara Steam Station. It is scheduled for operation later this year, and will supply electricity to industry centred in the area.

Work on the dismantling of the Hamilton Steam Generating Station's two 5,000-kilowatt units and operational facilities was completed late in 1956 and the equipment was shipped to Bheramara in eastern Pakistan where it is being incorporated into the Ganges-Kobadak Steam Station. This plant is expected to be in operation within two years, and will supply power to pump water for irrigation purposes.

A Canadian firm of engineering consultants – R. A. Hanright and Company Limited, St. Catharines, Ont. – supervised the dismantling of the Scarboro plant, as well as the generating equipment and associated facilities, and also the building of the Goalpara Station. Similarly this firm took charge of the removal of the generating units and other equipment from the Hamilton plant, and is now engaged in handling the construction of the Ganges-Kobadak plant.

H. G. Acres and Company, Limited, of Niagara Falls, Ont., supervised the dismantling of the two, 5000-kw. turbo-generators from the Thorold station, and their later installation in the "Maple Leaf" cement plant built by Canada in the northwest Punjab district of Pakistan. Part of a project known as the Thal development, the plant supplies cement for use in constructing irrigation canals and the building of homes.

Thus electric generating equipment once used to help Ontario through a temporary power shortage during the years of rapid postwar expansion now has an important role in an ambitious plan to help the Asian nations help themselves. ■

(Photographs of the Warsak project by courtesy of Mrs. Kate Aitken and the Toronto Globe and Mail.)



CANADA'S HOUSE OF COMMONS WITH ITS FAMED PEACE TOWER DRAWS CROWDS OF VISITORS EVERY YEAR

CANADIAN PANORAMA



ALWAYS a fascinating place for youngsters and "grownups" alike is Old Fort Henry, near Kingston, Ont., where the guards perform precision drills dating back to the days of the British Imperial Army, and fire salutes from 24-pounders, cast between 1769 and 1816.

From Atlantic to Pacific, the 10 provinces are preparing to welcome a host of visitors

SPANNING a distance of 4,365 miles from St. John's, Newfoundland to Victoria, B.C., Canada offers a sparkling diversity of climate, scenic splendor, economic activity, and leisure attractions to satisfy even the most cosmopolitan tastes.

Each year new transportation developments and new highways are making "out-of-the-way" places more accessible. By rail and water, two major railway systems – the Canadian National and the Canadian Pacific Railways – link the 10 provinces of the British Commonwealth's senior dominion from the Atlantic to the Pacific. Over the past half-century railway mileage has more than doubled. Today there are more than 44,000 miles of track – a total exceeded only in Soviet Russia and the United States.

Air Line Routes

Routes of the two principal air line organizations – Trans-Canada Air Lines and Canadian Pacific Airlines – criss-cross the nation, carrying a greater volume of passengers every year. Trans-Canada's routes span a quarter of the globe, reach from coast to coast in Canada, to major cities in the United States, across the Atlantic to the United Kingdom, France, Germany and southward to Bermuda and the Caribbean. Today Canadian Pacific Airlines is the country's largest north-south air carrier. C.P.A. routes in Canada total more than 9,000 miles, while it operates 29,718 miles of international routes.

Highway travel in Canada is yearly enjoying greater popularity as the network of roads and highways spreads out into new areas, bringing new vacation spots within easy reach for Canadian tourists and visitors from other lands. The latest figures show that Canada now has more than 524,000 miles of highway.

Inland Water Routes

Inland waterways are another favored means of travel for many vacationists. Cruises on the Great Lakes, down the St. Lawrence and along the Saguenay River never lose their appeal for countless Canadians, while hundreds of smaller private craft and steamers ply such famed aquatic avenues as Ontario's Trent Valley Canal, the Rideau Canal and the Muskoka Lakes chain during the summer period.

A notable human tendency is to consider that faraway fields are greener – to be enthusiastic concerning the wondrous scenic and other advantages to be found elsewhere, and overlook the numerous assets and attractions to be enjoyed right around home.

In Ontario there is something for everyone – for every vacationist to see and do – whether he be an ardent angler, hunter, camera fan, lover of nature, culture or history, or just a sightseer.

Ontario's myriad sparkling lakes and rippling streams offer some of the best fishing in the world. Hunters return home well rewarded in most cases. An 80,000-mile system of toll-free highways enables one to reach most holiday areas within a few hours.

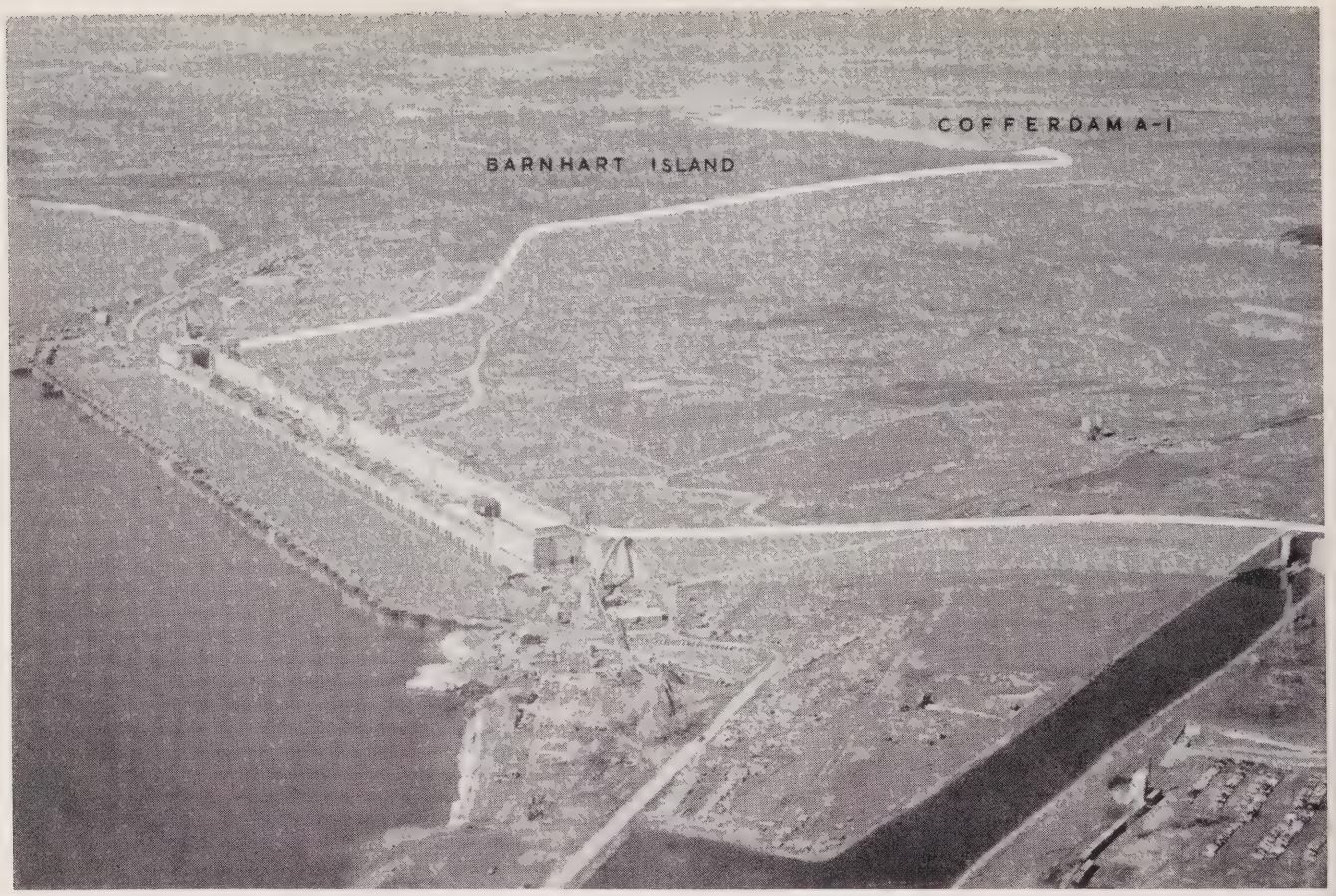
Historic sites, summer theatres, museums and art galleries tell the colorful, exciting story of the province's archaeological origin, its courageous pioneers, its subsequent industrial, economic and cultural pro-

(Continued on page 8)





BELIEVED to be the largest in the world, Ontario Hydro's floral clock near Queenston was completed in 1950. Since that time it has become a major tourist attraction of the Niagara Parks area.



ANOTHER CENTRE of interest for tourists this year will be the St. Lawrence Power Project, which will soon be producing its first power. Particular interest is being focused on the flooding operations in the next few weeks. Part of the area to be flooded is shown above within the white lines extending from the end of the United States plant adjacent to Barnhart Island, and from the Ontario Hydro generating plant, close to the foreground. The flooding operations will start with the removal of Cofferdam A-1 upstream from the powerhouses.

gress. Beautiful, breath-taking scenery abounds, making Ontario an artist's, photographer's and sightseer's paradise.

The Martyrs' Shrine (Midland), world-famous Niagara Falls, Jack Miner's Wildfowl Sanctuary, Bonnechere Caves, provincial parks and wilderness areas, the 30,000 Islands of Georgian Bay, the 1000 Islands of the St. Lawrence, Lake of the Woods and Rainy River area, Temagami, Algoma, the Muskoka Lakes, the Rideaus, the Kawarthas, Kakabeka Falls, Old Fort Henry, Fort York, Casa Loma, Shakespearean Festival Theatres, the C.N.E., the regattas, racing meets, log-rolling championships, are only a few of the hundreds of summer-to-autumn attractions to be found in this province that match anything to be seen in faraway places.

To meet the needs of more than three million people expected to use provincial parks this year, the Ontario Government is planning to add about 20 to the more than 100 parks already in operation. The development and improvement of the province's parks will be carried out under a master plan providing for all necessary facilities, including camping and parking area development and construction of roads and trails. Nature museums and trails are maintained in Algonquin, Quetico, Rondeau, Presqu'Ile, Sibley and Serpents Mounds Provincial Parks and have proven widely popular.

Niagara Parks

Ontario's most famous unified park system consists of 35 miles of delightfully scenic park area bordering the entire Niagara River between Lake Erie and Lake Ontario. The southern limit of the Niagara Parks is Old Fort Erie, opposite Buffalo, N.Y., on Lake Erie, site of battles during the War of 1812-1814. From this historic location the Niagara Parkway borders the Niagara River to Niagara-on-the-Lake, once the Capital of Canada. Queen Victoria Park is the hub of the Niagara Parks, commanding an unequalled view of the majestic Niagara Falls.

Comparable to the foresight responsible for the development of this 3,000-acre parkland area, was the recently completed Niagara Remedial Works program aimed at minimizing the serious process of erosion that has

caused Niagara's Horseshoe Falls to recede some 865 feet since 1764.

Four Hydro Plants

Ontario Hydro's participation in this international project is symbolic of the Commission's association with the Niagara area. Four of its major hydro-electric plants are strung along the Canadian shore of the Niagara River.

This year will witness completion of the final phase of construction at the Sir Adam Beck-Niagara Generating Station No. 2. Since this project was first undertaken in 1950, its visitors' book has grown into a bulky volume, including many names from the world's "Who's Who."

With an associated 750-acre pumped-storage reservoir, two sprawling generating stations in the gorge of the lower Niagara River, an intricate network of power canals, and a colorful, ingenious floral clock, the Sir Adam Beck No. 2 plant and the adjacent No. 1 plant are typical of man's skill and native artistry in creating Ontario's Niagara Parks — a system of maintained gardens and sites rich in history, beauty and relaxation.



St. Lawrence in Focus

Far to the east another significant park development is taking place as the Ontario-St. Lawrence Development Commission moves forward with its plans for beautifying and maintaining a 3,500-acre green belt and preserving the storied history of the St. Lawrence Valley.

This significant project gives promise of attaining rank as another major Ontario tourist attraction. In reality it is a sequel to the St. Lawrence Seaway and Power Project, which for many years has captured the attention of the practical idealists of two nations.

Here again Ontario Hydro figures importantly in an international project that has created widespread interest among thousands of travellers. Both the power development and the deep-channel Seaway will be brought into even sharper focus before many weeks as the St. Lawrence River begins to rise to form the headpond for two monster generating stations that now span its north channel in the International Rapids Section.

Ontario Events

But this is just one of Ontario's attractions scheduled for the coming months of 1958.

There is an exciting variety of events, including the famed Stratford Shakespearean Festival (June 23 to September 13), the Royal Canadian Henley Regatta featuring top scullers in North America at Port Dalhousie near St. Catharines (tentatively July 23-26), and the Canadian National Exhibition at Toronto (August 20-September 6), to name a few.

Further gains for the Province of Ontario's travel business are expected in 1958, Hon. Bryan L. Cathcart, Minister of Travel and Publicity, said recently. Requests for travel information for the first three months this year were 33 per cent higher than in the same period last year. And Ontario's hotel and resort operators are ready to take care of the influx of

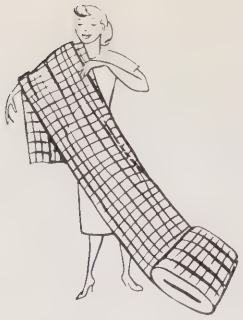
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PROSPECT POINT in Vancouver's Stanley Park is one of the scenic spots of British Columbia, which is marking its 100th anniversary this year with special events.



A TINY TOURIST beats up the flapjack batter during a stop for lunch while riding the trail through Alberta's famed Waterton Lakes National Park.





visitors. More than 50 new motels were opened in 1957, along with 11 new lodges, two inns, five cabin colonies and 23 tourist homes. Altogether Ontario's resort and tourist establishments, it is estimated, can now accommodate upwards of 400,000 vacationists at one time.

Ontario will have keen and lively competition from its sister provinces this summer.



NOVA SCOTIAN Highland dancers at the Gaelic Mod, which will be held this year from August 5-10 at St. Ann's, Cape Breton.



ANOTHER popular vacation pastime is a cruise on a Canadian inland waterway. Here a cruise ship calls at a Quebec port on the St. Lawrence River to take on passengers.

This year has an extra meaning for the people of British Columbia, for the Pacific province is celebrating its 100th anniversary. From the "Garden City" capital of Victoria to the "Gateway to the North" at Dawson Creek, every community has planned birthday celebrations.

Among the feature centennial attractions will be the famous Royal Canadian Mounted Police Musical Ride to be performed at a dozen communities during July and August. Members of the equally famous Mounted Police Band will also tour the province during this time. A spectacular naval review with ships from 15 countries will be staged during the last week of July. It will be the largest assembly of fighting ships since the coronation of Her Majesty Queen Elizabeth.

The cool, clean air of its mountain playgrounds make vacations in Alberta a climatic joy. Banff and Jasper National Parks are magic names in the province and Waterton Lakes National Park is another popular vacation land. All are blessed with high exciting peaks, wooded valleys, rivers, cool lakes and an abundance of mountain wildlife.

Highlighting the numerous rodeos and other events in Alberta is the annual Calgary Stampede and Exhibition (July 7-12), with all the color and excitement of a frontier rodeo. There are cowboys, cowgirls, and Indians galore, and the whole city of Calgary takes on a gay atmosphere, western style, for the duration of the big show.

Saskatchewan, renowned as the wheat basket of Canada, has as much forest area as prairie, with Prince Albert National Park, Lac La Ronge and surrounding areas providing superb fishing for lake trout, northern pike and walleyes. With the distinction of being the first province to complete its section of the high-standard

Trans-Canada Highway, Saskatchewan provides good travel conditions to all vacation areas.

Historic Fort Battleford, original headquarters of the North West Mounted Police, Lund's Wildlife Exhibit at Prince Albert, and the Moose Jaw Wild Animal Park are some of the other major points of interest in Saskatchewan. The Frontier Days Rodeo at Swift Current (June 30-July 2), the Saskatoon Exhibition (July 21-26), and the Provincial Exhibition at Regina (July 28-August 2), are a few of the feature attractions for 1958.

Manitoba Attractions

Manitoba with its rolling countryside and well-wooded valleys lays claim to more than 39,000 square miles of beautiful lakes, streams and rivers scattered throughout the province. And there is excellent fishing for lake trout, northern pike, walleye and smallmouth bass. The province is a vast reserve for big game and is renowned for its excellent game bird shooting.

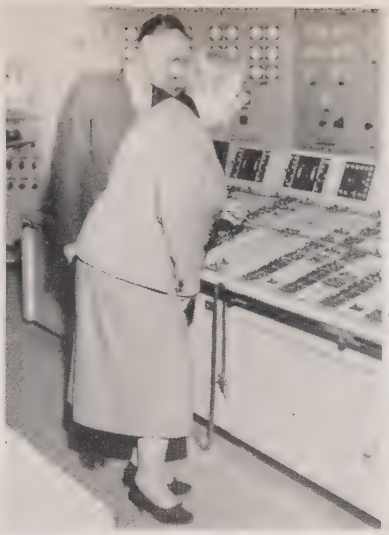
The fascinating community of Flin Flon, jumping off point for trappers, prospectors and outdoor sportsmen is the scene of an event reminiscent of pioneer days, each year. Pack-carrying and fishing contests, a canoe derby and Indian dancing are all part of the Flin Flon Trout Festival, held each year about the first week of July. Manitoba's Provincial Exhibition at Brandon (June 30-July 4) is another of the many attractive highlights in this vacation wonderland.

Steeped in history, the province of Quebec is the cradle of French-Canadian culture. From Montreal, second largest French speaking city in the world, to the Gaspé, it is rich in tradition and Old World culture, an environment found nowhere else in North America. Its churches and cathedrals are historic landmarks

(Continued on page 28)

(We gratefully acknowledge the courtesy of the Canadian Government Travel Bureau and the Ontario Department of Travel and Publicity in supplying several of the photographs appearing with this article.)

FAMOUS VISITORS



DURING a recent whirlwind visit to Canada, Ald. Pearl Hyde, Lord Mayor of Coventry, toured Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2, where she was noted discussing this intricate panel in the station control room with H. J. Sissons, Assistant General Manager — Services.



EMPHASIZING international amity, Ontario Hydro Chairman James S. Duncan extends a greeting to Harry S. Truman, former President of the United States, who visited the St. Lawrence Power Project recently. In the centre is Sir William Rootes, head of the United Kingdom trade mission. Members of this delegation toured the development the same day.



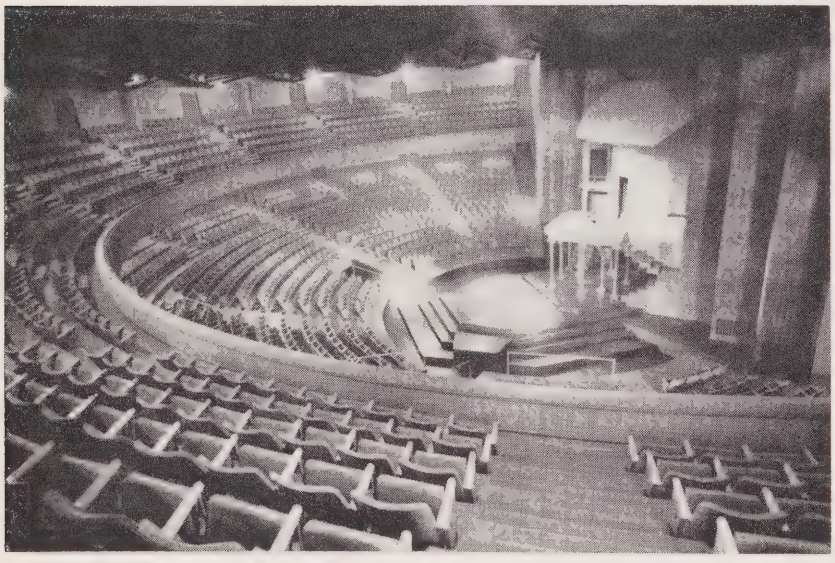
A FEW DAYS LATER another famous visitor was a guest of Ontario Hydro during a tour of the St. Lawrence dveelopment. Prince Bernhard of the Netherlands is shown with Cornwall's Mayor L. G. Lavigne (left), Chairman James S. Duncan and Project Director Gordon Mitchell (pointing).



Drama, music and movies have put this Ontario city out "front centre" on the world's stage

BY E. B. BOLWELL

STRATFORD'S SUC



STRATFORD'S unique open stage, used for the first plays in 1953, has been incorporated in the design of the permanent drama theatre.

ONTARIO'S City of Stratford has always been well-known in Hydro circles as one of the first 14 municipalities to sign a power contract with the Commission in May, 1908. But, today, Stratford is earning much wider renown. Throughout the world, it is gaining a reputation as an exciting new centre of the arts. Its annual summer festival of drama, music, films and art exhibits drew a peak attendance of nearly 200,000 last year.

The story of how a city with a population of 20,000 attained such fame begins early in 1952. It was then that the Stratford City Council first discussed the possibility of staging a Shakespearean Festival. The only apparent point in favor of the project initially, was the fact that the city bore the same name as Shakespeare's birthplace in England. But Tom Patterson, a young Stratford journalist (now Director of Planning for the Festival), who conceived the idea, and his loyal supporters had another, hidden asset: they had tremendous determination to make their dreams come true. By late 1952, this determination had taken definite form. Convinced that the festival would be worthwhile only if it were produced on a grand scale, the foundation committee engaged Britain's Alec Guinness as the principal actor for the inaugural season of 1953. It also obtained the services of Tyrone Guthrie, former administrator of London's Old Vic Theatre, as director; Tanya Moiseiwitsch

CREON'S MASK designed by Tanya Moiseiwitsch for the 1954-1955 presentations of "Oedipus Rex."



RESEMBLING a carousel in its exterior design, the new Stratford Shakespearean Festival theatre, which can accommodate some 2,200 patrons, has won wide acclaim.



ESS STORY

as designer; Irene Worth as leading actress; and Douglas Campbell, another Britisher, to head the supporting players.

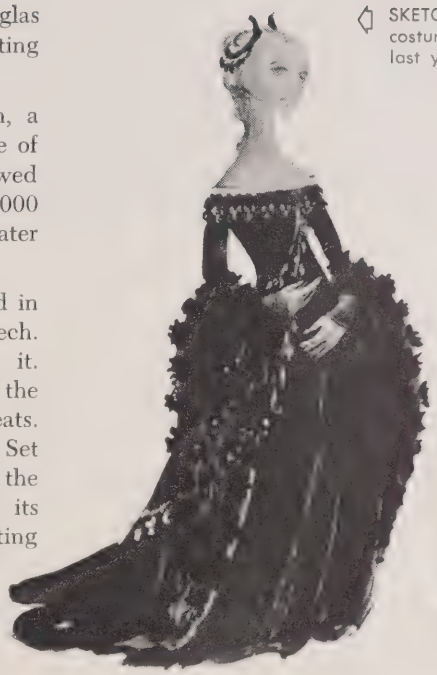
While the drive for top-class talent was going on, a fund-raising campaign was launched with an objective of $150,000. The people of Stratford once again showed their determination for success by contributing $40,000 themselves within two months. Widespread support later pushed the total to $157,000.

On July 13, 1953, the first Stratford Festival opened in surroundings as picturesque as any Shakespearean speech. The canvas theatre had an Elizabethan air about it. Inside, the stage was shaped like a diamond, and the audience almost fully surrounded it on 16 tiers of seats. Outside, the atmosphere was similarly enchanting. Set amid the rolling lawns of the Stratford City Park, the theatre overlooked the beautiful Avon River with its graceful swans. The combination of delightful setting and fine productions – both "Richard III" and "All's Well That Ends Well" were presented – proved an outstanding success. By the end of the five-week season, the name of Stratford, Canada, had been set in a new orbit in the firmament of the arts.

The promoters were satisfied but not complacent. They immediately set about expanding the festival. Another fund-raising campaign helped to enlarge the theatre, and, in 1954, the attendance jumped from the opening-season figure of 68,600 to 125,155. Extra interest was generated by the addition of exhibitions on the history of world theatre and Canadian sculpture and fine art. In 1955, a festival of music was inaugurated in conjunction with the drama season, and the exhibitions were expanded to

(Continued on page 14)

SKETCH of a court lady's costume by Desmond Heeley for last year's "Hamlet" production.





VALENTINE'S costume for the 1957 presentation of "Twelfth Night" was based on this sketch by Tanya Moiseiwitsch.

include a display of Canadian art arranged by the National Art Gallery in Ottawa. Overall attendance increased again.

National Campaign

In the autumn of 1955, a nation-wide campaign was organized to finance the building of a permanent theatre for the drama presentations. Realizing the value of the festival to the whole of Canada, the Canadian Government donated a quarter of a million dollars. The Ontario Government matched this figure and the City of Stratford, its business firms and citizens subscribed a total of $140,000 – an amazing average of seven dollars for every man, woman and child.



While other donations of all sizes flowed in and the total swept past the million-dollar mark, the drama festival staged its last season in its tent-theatre in 1956. This time, in addition to drama, music and art exhibitions, the organizers offered a festival of films. And so, what had begun as a mildly ambitious plan to revive the art of Shakespeare, developed into a huge festival embracing practically all art forms.

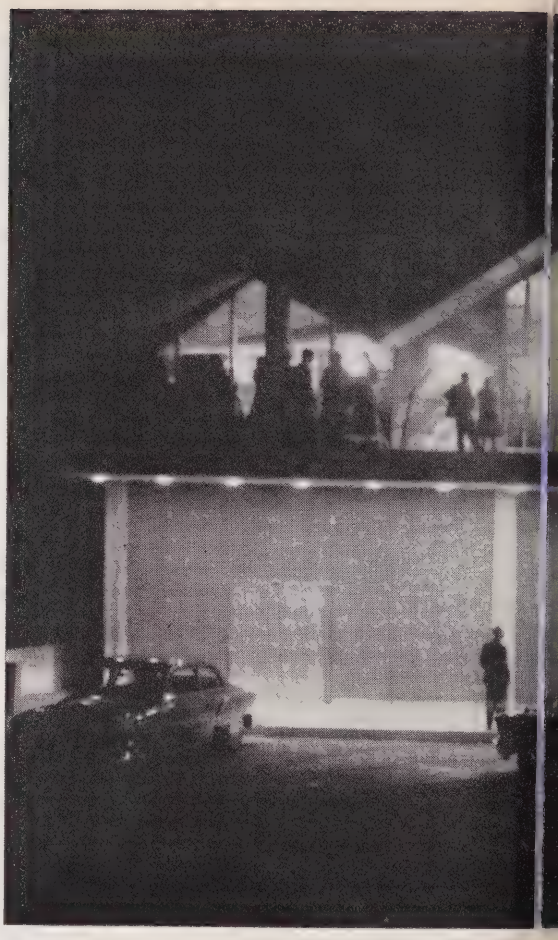
As if symbolizing the firm place the Stratford venture had won in universal esteem, the new, permanent theatre was completed in time for the 1957 season. The design of Toronto architect, Robert Fairfield, maintained the romantic atmosphere of the old tent theatre. Retaining the original concrete auditorium bowl and stage, Mr. Fairfield enclosed them in a circular, concrete structure with a fluted roof, topped by a coronet and flying pennant. The result was a magical mixture of the mediaeval and the modern.

Increased Capacity

On the practical side, the new building has a spacious foyer, enclosed promenades, a covered terrace, lounges, offices and complete backstage facilities. The addition of an 858-seat gallery increased the audience capacity to 2,190 – and yet no spectator is more than 65 feet from the stage.

Comfort considerations have continued this year. Before the next season opens, a combined heating and air-conditioning system will have been installed at a cost of $400,000. This innovation will provide Hydro with another proud link with the festival. In the past, of course, electricity, distributed through the facilities of the Stratford Public Utility Commission, has provided theatre illumination – from the 1000-watt lamps used to spotlight the stage to the 6-watt bulb which glows above the stage manager's cue board. Leonard Smith, the house electrician, has high praise for the service, too.

"We have an emergency electrical system which can be used to provide sufficient lighting to clear the theatre if Hydro service is disrupted," he says. "But, so far, we haven't had to use it. A storm caused a slight interruption on one occasion, but service was quickly restored and the show went on."



SHAKESPEARE'S "Measure for Measure," presented in 1954 starred James Mason and Canada's Frances Hyland.



PATRONS THRONG THE BRILLIANTLY ILLUMINATED FOYER AND SECOND-FLOOR BALCONY OF THE CIRCULAR THEATRE.



PLAYING the title role in "Julius Caesar" during the 1955 season, Robert Christie is shown during the first act of the famed tragedy.

When the entire "Stratford show" goes on this year, it promises to break all attendance records. Interest has never been higher or more widespread, with applications for tickets from all over Canada, the United States and even from across the Atlantic. One special overseas "patron" will be Princess Margaret, sister of Canada's Queen. The Royal visitor is scheduled to attend a command performance of "The Winter's Tale," starring Christopher Plummer, Eileen Herlie and Bruno Gerussi, on July 31.

In addition to "The Winter's Tale," the drama season will include "Henry IV, Part One" and "Much Ado About Nothing." The music season will feature a production of "The Beggar's Opera," concerts by the Festival Singers, folk music, and performances by many noted jazz musicians. Once again, too, there will be an International Film Festival and exhibits on art, theatre and books.

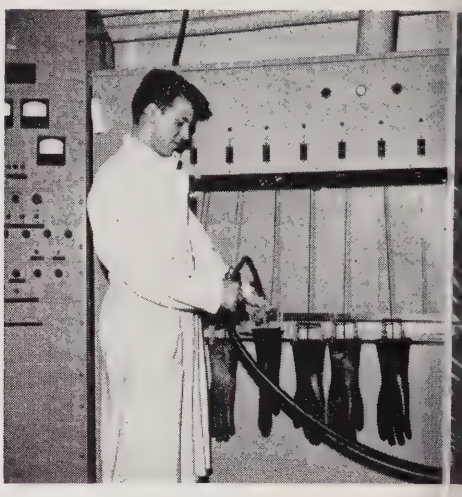
The entire season will run a record 12 weeks this year – from June 23 to September 13. The intense activity planned for this period suggests that, if "all the world's a stage," Stratford, Ontario, must be "front centre." ■



HAND



LINEMAN CLIFF GILMOURE of Ontario Hydro's Toronto Region staff has complete confidence in his "handwear" as he prepares to work on a "live" line. Special leather covers guard against any possible damage to the lineman's rubber gloves.



ROBERT SELKIRK, Research Division technician, is preparing several linemen's rubber gloves for one of the dielectric strength tests.

MANY Ontario Hydro employees are exposed to potential hazards in the performance of their duties, but they work hand-in-glove with safety at all times.

Because the hands and wrists are the parts of the body most frequently in contact with the materials, tools and equipment likely to cause accidents, gloves are an important item in the Commission's wardrobe of protective clothing. And for every job where hands may be subject to danger, there is a specific type of glove to prevent injury.

The gloves – there are 10 standard types – range from heavy plastic gauntlets for maximum protection against abrasion, to the familiar rubber insulating gloves, indispensable for work on live lines up to 5,000 volts. The latter are worn with a special outer leather cover to guard against punctures from sharp tools, slivers or wire ends, and a cotton liner to absorb moisture, or to add warmth during colder weather.

N-GLOVE

by DON WRIGHT



CENTRAL WAREHOUSE SUPERINTENDENT J. W. EVANS (right) examines a shipment of leather work gauntlets before Stockman Bob Edgar places them in storage. Linemen wear this type with a fleece "liner" for normal winter field work.



GORDON BURGESS, Surplus Equipment and Materials Department, uses another type of rubber glove (and goggles) to protect him from splashing with acid while he is "bright dipping" several items of line hardware which will be re-issued to Central Stores.

A lineman's leather work gauntlet for hand protection on normal field work during the spring, summer and fall months is perhaps the most widely used. In its present form, this glove reflects many design recommendations submitted by the Commission to the manufacturers as the result of a continuous review of performance. Its cold weather counterpart is a one-finger model worn with a fleece-lined liner. A less expensive, short-cuffed cowhide is used for general protection and for work with certain oils and greases.

Plastic Hand Coverings

Hydro handwear also includes three types of plastic hand coverings – one for heavy work with metal, rock and other abrasive material; one for use on jobs that would be too hard on leather, such as handling acids, lye and herbicidal sprays; and an elbow-length gauntlet used principally for work with soil sterilizers. The fashion with these, again dictated by safety, is to keep the sleeves rolled down and tucked firmly inside the gauntlet.

Relatively small quantities of several other types of gloves are purchased by the Commission for jobs requiring a particular type of protection. Asbestos gloves for welding and handling hot metals fall within this category.

As a safety measure, of course, gloves are only effective so long as they are in good condition. Saturated with oil, a leather glove loses its resistance, and sharp metals will cut through it like a hot knife through butter. Worn over a prolonged period, soiled gloves may also cause skin rash.

Defects in rubber gloves can be even more disastrous so that every possible precaution is taken to make sure they are safe for use.

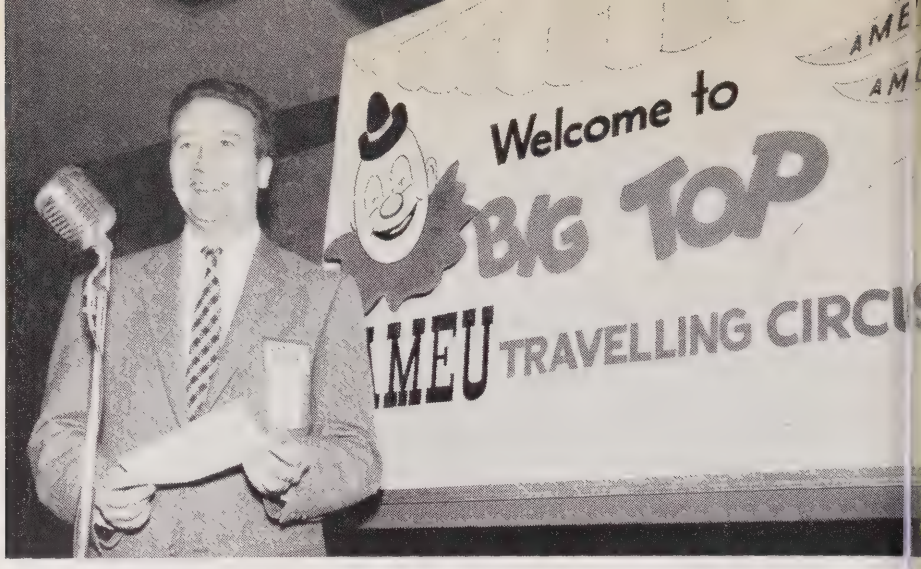
Laboratory Tests

Approximately 60 pairs of new gloves are put through a series of acceptance tests each month in the Commission's Research Division laboratory in Toronto. They are subjected to dielectric (non-conductive) strength tests of 10,000 volts for three minutes, as well as a searching visual examination for other possible flaws. Should the slightest defect be discovered, a glove is returned to the manufacturer.

As a further precaution against possible deterioration through use or other causes, some 1,600 pairs of rubber gloves are retested every month.

Equipment in the Electrical Research Department of the Commission's Research Division laboratory is used for these tests, 12 gloves being tested at one time. The gloves are filled with water and immersed in a water-filled tank to within 1½ inches of the cuff. Voltage is then applied between a chain, suspended inside

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"RINGMASTER" Gordon Stacey, Guelph, Director, West Central Region, A.M.E.U., welcomes delegates attending the inaugural "travelling circus".

Regional Workshop

"TRAVELLING CIRCUS"

A THREE-RING "travelling circus" – complete with clowns, animal tent and side show – made its initial stand at Kitchener on May 1 and 2 this year with such obvious success that repeat performances are being scheduled for many Ontario centres.

The "big top" in this instance was Kitchener's Terminal Building, site of the first A.M.E.U. Regional Workshop (Travelling Circus).

The circus motif was evident in three curtained areas – designated as "side show," "animal tent" and "freak show" – on the main floor of the terminal building. Maintaining the carnival air, too, appropriate circus music signalled the beginning and conclusion of the various "acts." Each "patron" – representing member municipal utilities of the West Central Region – was provided with a colored ribbon identifying him as an "Indian," "clown" or "barker." And by following directions on the program, the individual participants in the two-day program were able to complete the full circuit of "attractions."

Apart from the décor and these novel methods of "stage-management," however, the first A.M.E.U. "Travelling Circus" was a very business-like and informative event, embracing discussions of many practical methods of electrical distribution.

The purpose of the regional workshop, as outlined at a special meeting of the A.M.E.U. Engineering Section earlier this year, was "to fill the void that existed in the self-improvement program for utility personnel at the level of the foreman or superintendent of the smaller utility." It was felt that the needs of utility office personnel and management in general were being met by the two annual accounting and office administration conferences and the annual convention, while the summer technical conference, as well as the annual workshop inaugurated last year, were adequately fulfilling the requirements of utility engineering representatives.

From Tent to Tent

Lecturers for the first regional workshop were recruited, in most cases, from the ranks of the association's commercial membership. The lecture schedule called for three simultaneous sessions attended by small groups of delegates, who moved from "tent to tent" as the program advanced. Thus it was possible to keep instruction at a more intimate and effective level than would have been possible in a single large assembly.

Two subjects were discussed during each session in the three centres of instruction, each "class" concluding with a lively question-and-answer period. Movies, slides, demonstration equipment and "chalk talks" were used effectively by the instructors to illustrate their topics.

The need for good street lighting was discussed by John Harrison, Holophane Company Ltd., who listed 26 distinct benefits that might be realized by instituting a modern street lighting program. His fellow "side show" instructors were Joseph Devine, Canadian Line Materials Ltd., and Ian Morrison, Powerlite Devices Ltd. They described the latest types

of lightning arresters available and the best methods of installation to afford maximum protection.

In the "animal tent," instruction on short circuit protection was provided by D. J. Glenn, S. & C. Company, and by Mr. Devine. The alternate lecturer was Keith Campbell, Ontario Hydro, who described the use of temporary grounding devices as a safety measure when working on "isolated" lines.

Metering Discussion

One of the features of the twin bill in the "freak show" was a lecture on the fundamentals of metering electric energy, together with an outline of the methods and equipment used to measure the consumption of electricity by residential and industrial customers. Instructors were L. A. Cain and S. W. Gardiner, Sangamo Co. Ltd., and G. B. McNeil, Canadian Westinghouse Co. Ltd.

George Wilkinson and W. L. McKiel, Canadian Westinghouse, teamed up with E. P. Winch and H. S. Myers, English Electric Company, to explain certain aspects of transformer testing, installation and operation of particular interest to the smaller utilities.

At the conclusion of the technical sessions, the delegates were addressed by Bert Merson, Toronto, O.M.E.A. President; J. A. Williamson, President of the A.M.E.U., and by Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy. A vote of appreciation was extended to Gordon Stacey and the committee which handled the arrangements, and to the commercial members for their fine technical presentations.

HYDRO TO RE-ENTER WATER HEATER FIELD

Highlight of the annual meeting of the West Central Region of the A.M.E.U., which concluded the two-day gathering, was an address by W. R. Harmer, Assistant Director of Ontario Hydro's Consumer Service Division.

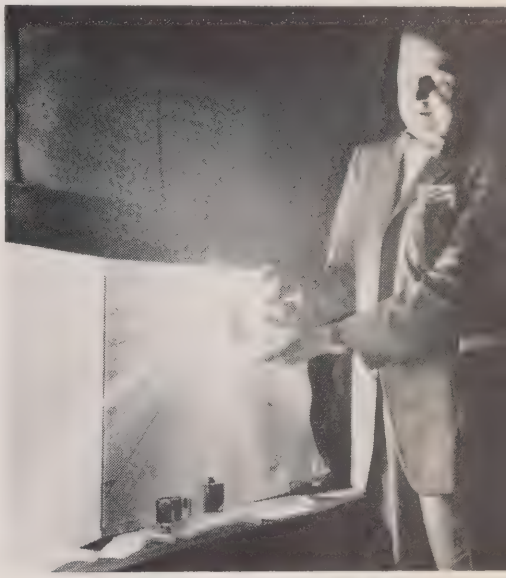
Of special interest was Mr. Harmer's announcement that the Commission had approved a plan whereby it will purchase electric water heaters, built to Hydro specifications, and make them available to rural customers on a rental basis.

Mr. Harmer said the plan will constitute an important phase of the *Live Better Electrically* educational campaign and that it can be extended to include municipal electrical utilities if they so desire.

Desirable Load

In outlining the new water heater program, Mr. Harmer said that the monthly rental would include fixed charges, installation and maintenance costs, as well as the charge for energy. He said that the decision had been influenced by the need to retain and develop this desirable, year-'round load in the face of increasing competition from natural gas.

(Continued on page 28)



JOHN HARRISON, Toronto, demonstrates the effectiveness of modern prismatic lenses while presenting a paper on street lighting

LIVELY question-and-answer periods followed each technical session. Here Keith Ormrod is leading the discussion on street lighting. The agenda also included papers on short circuit protection, lightning arresters, grounding, transformers and metering.



CHATHAM HONORS R. S. REYNOLDS



ON BEHALF of her Chatham Hydro associates, Mrs. Ivan Pritchard presents R. S. Reynolds with a large framed portrait.

MAY 1 this year was a unique occasion for R. S. Reynolds, Manager and Secretary of Chatham Hydro Electric System.

Observing his birthday and the 33rd anniversary of his association with Hydro, Mr. Reynolds was honored by the commission he has served for 29 years and by members of the utility staff.

Recognizing his outstanding contribution to the growth of Chatham's Hydro system, the local commission formally unveiled a tablet over the entrance to the main substation, officially designating the two-storey red brick structure as the "R. S. Reynolds Service Centre."

During the "family party" that followed, Mrs. Ivan Pritchard, on behalf of the staff, presented the popular utility executive with a framed portrait to be hung in the spacious staff recreation hall on the second floor of the building.

Speaking briefly during the unveiling ceremony, Chairman Stanley G. Thomson recalled Mr. Reynolds' leadership in erecting the building in 1937. Since that time it had become increasingly apparent "what a good investment it was for Chatham and its citizens."

Construction of the building was just one of the progressive steps Mr. Reynolds had taken in his capacity as manager, the speaker observed. He first instituted underground distribution in 1929. "Chatham today has a large network of cable," which has helped the utility to provide uninterrupted service during storms. The downtown office building and many other improvements were "tributes to his well-known ability."

Thus the plaque, Mr. Thomson said in concluding his remarks, represented a tangible expression "of our appreciation of his services."



PLAQUE over the main doorway designates the building in Mr. Reynolds' honor. He is shown with Mayor Garnet Newkirk (left) and C. L. Leach, Assistant Manager, acknowledging the honor.

Following the dinner at which Clayton Leach, Assistant Manager, capably presided as master of ceremonies, further tributes to Mr. Reynolds were expressed by Mayor Garnet Newkirk and Commissioner Tom Howard. Mrs. Reynolds, who was among the head table guests, was the recipient of an orchid corsage, presented by George Downs.

In acknowledging the honors conferred on him, Mr. Reynolds recalled that the property for the service building had been acquired from the Chatham, Wallaceburg and Lake Erie railroad when it ceased operations.

Construction of the building (once jokingly referred to as "Reynolds' folly") had cost only $22,000. "I doubt if we could get the plans for that price today," the speaker observed.

Recalling his early association with Ontario Hydro in rural line construction in southwestern Ontario, Mr. Reynolds also gave a brief outline of the growth of the Chatham Hydro system.

"I honestly believe that we have been successful in providing good electrical service in this city. But it is not all my doing. It is a tribute to the men and women on our staff, and to the commissioners under whom I have served." ■

UNIVAC II COMES TO TOWN



HEAVY, bulky parts of the 355-piece shipment, such as this section of the central computer frame, were hoisted by crane to the third floor of Ontario Hydro's Head Office.



TECHNICIANS assemble the central computer, which includes approximately 200 miles of wiring, 5,600 tubes and 18,000 crystal diodes.

IT'S HERE — on May 6 Ontario Hydro took delivery of major components of the first Univac II electronic computer to be installed in Canada. Transported in three large vans to the Commission's Head Office building on University Avenue, Toronto, the shipment comprised 355 pieces, weighing 33,000 lbs. Two of the heaviest pieces were hoisted by crane to the third floor which has been specially planned and conditioned for the installation and operation of the new computing apparatus. The ingenious equipment will occupy some 6,000 square feet when completely assembled. The delivery marked a significant step in Hydro's program of applying the most advanced electronic techniques to its province-wide organization. Ultimately, this "nerve centre" will link up with Toronto all the Commission's nine regional offices and 105 rural operating areas through teletype communication within a 250,000 square-mile operational area in Ontario. Fred P. Thomas, Ontario Hydro's Director of Data Processing, states that much of Hydro's commercial data, such as customer accounting, payrolls, and inventory control, will be performed by Univac II, in addition to engineering and scientific computations now being done on a smaller computer.

THREE Data Processing Division representatives, left to right: F. P. Thomas, Director; Ian Tate and W. M. E. Kaye examine one of the two high-speed printers, which will transpose data from magnetic tape to paper at rates ranging up to 600 lines a minute.



While the entire province-wide network is expected to be completed before next spring (1959), the first phase of the Commission's electronic data processing — the handling of customer data — is scheduled to commence this fall, with the conversion of Toronto Region's customer data processing to the new system. This region includes such key points as Brampton, Markham, Richmond Hill, Sutton and Woodbridge as well as the Toronto Regional Office. When the province-wide system is in operation, one of the many phases of Univac's "duties" will involve the processing of some 1½ million annual billings to customers. ■

FOTO-NEWS

FAREWELL HONORS

James H. Page, former Manager of Renfrew Hydro-Electric Commission (left), was honored with the presentation of a gold desk clock before leaving to assume the managership of Trenton P.U.C. Mr. Page is shown with the new Renfrew Manager, F. J. Beauchamp, a former employee of Ontario Hydro and Kingston P.U.C. (Renfrew *Advance* photo.)





TEACHING ELECTRICAL LIVING

Sarnia Hydro-Electric Commission and its enterprising staff are carrying the "Live Better Electrically" theme right into the city's schools. Here James Barr, Sarnia Chairman (right), and Dr. Gordon Anderson, a member of Sarnia Board of Education, examine one of two electric ranges recently presented to Sarnia Collegiate Institute and Technical School by the local utility, which plans to eventually equip all city schools with electric stoves for their home economics classes.

ASTORVILLE LIGHTS UP

Residents of Astorville, Ont., and members of East Ferris Township Council were all smiles recently when Harry Yuzwak, a member of the Commission's North Bay Operating Area staff (extreme left) climbed a pole to inaugurate the 75-year-old community's first street lighting system. Hydro service was introduced at Astorville in December, 1947.





ESSAY WINNERS

Listowel Public School and District High School winners of the recent Hydro Essay Contest sponsored by the Listowel P.U.C. received their winning cheques at a recent meeting of the commission. Girls took all honors at the public school and are shown seated above, left to right: Jo Ann Moore, second; Mary Martin, third; and Mary Pratt, first. It was an all-male winning section at L.D.H.S. and they are shown standing, left to right, Commissioner Jack McMichael; Dick Inglis, second; Paul Thompson, first; Brian Prescott and Jim Potts, tied for third; and Commissioner T. J. Moffat. Nearly 500 pupils took part in the contest. (*Listowel Banner* photo.)



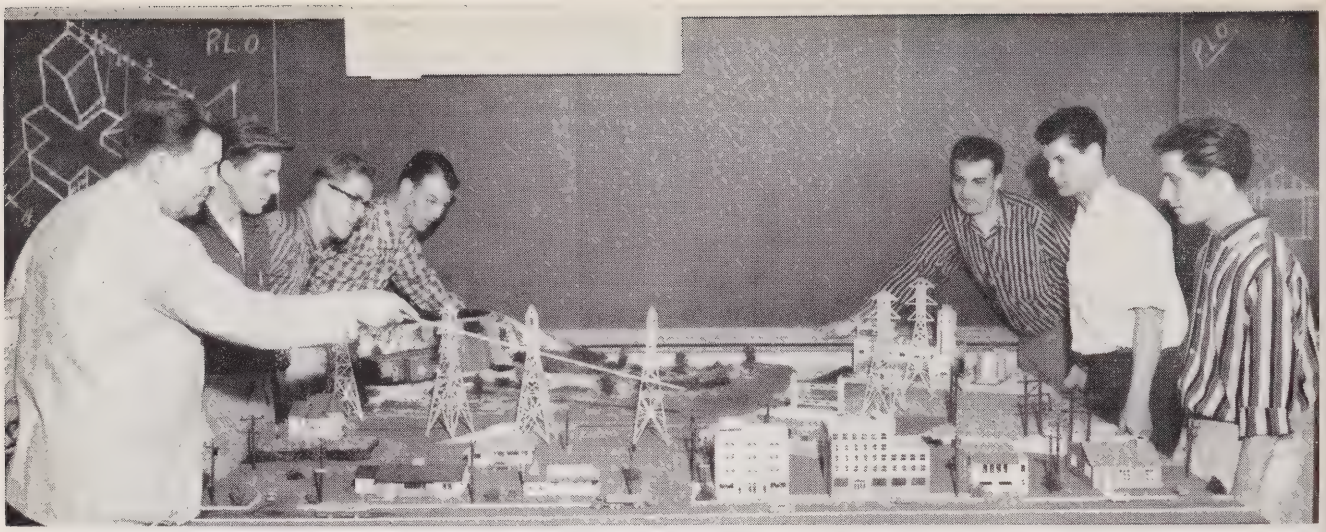
LONG SERVICE RECOGNIZED

Chairman John Bowman, who has commenced his 25th year of service with Ingersoll Public Utilities Commission, with Mrs. Bowman, admires an engraved silver tray presented to him during a recent dinner and social evening for commissioners, staff members and their wives, sponsored by the utility. During the gathering, Mayor Winnifred Williams presented watches to Ray Lockey and Earl Thornton, who have completed 30 and 28 years' service respectively. Two other long-service employees, Harry Burton, 36 years' and Edward Lockey, 51 years' service, received silver tea services presented by Mr. Bowman.



NAMED ADVISER

The 500th engineering technician to be certified in Ontario under the program established last year by the Association of Professional Engineers of Ontario, Alexander W. Cruickshank, 33, of Toronto (left), receives his certificate as an engineering technician grade III from Lloyd Nicholas at the first engineering technician's meeting held at the C.N.E.'s Queen Elizabeth building in Toronto recently. Looking on is Dr. George B. Langford, P.Eng., chairman of the certification board. Cruickshank is employed as an engineer's assistant, for the City of Toronto's Dept. of Public Works. Nicholas, also a Grade III technician, is employed in Ontario Hydro's Research Division, and has been appointed as an adviser to the certification board.

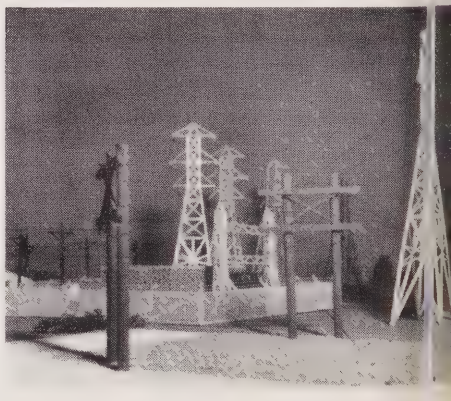


STUDENT model builders and their teacher survey their completed project. From the left are: H. F. Skinner, drafting instructor; Barry Hunt, Bill Dowling, Orval Wright, Grant Reynar, Bill Hands and Michael Lee.

BUILDING KNOWLEDGE

by E. B. Bolwell

A SECTION of the 8 x 8-foot model showing some of the transmission and distribution facilities, built to a scale of 1" to 10'.



TAKE a few pieces of balsa wood and cardboard, a box of small pins, a couple of reels of black cotton, a pot of glue, and some paint . . .

Put them in the hands of six eager electrical students . . . and add one inventive teacher . . .

Then leave them alone for two or three days – and the result will be a realistic model showing how electricity is generated, transmitted and distributed to consumers.

That WAS the result when the listed materials recently got into the hands of six students and the drafting instructor, H. F. Skinner, at Metropolitan Toronto's Bathurst Heights Collegiate and Vocational School in North York Township. They produced a model of a typical community served by both hydro-electric and thermal generating stations.

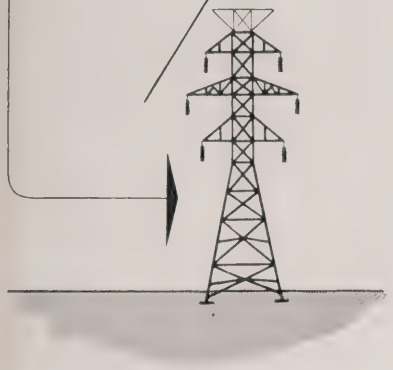
The balsa wood and cardboard were used to build the generating plants, a transformer station, a substation, transmission towers, distribution poles, and buildings in the mock townsite. The pins represented insulators on the black-cotton lines. The glue held them all together and the paint added the finishing touches.

Of course, it wasn't as easy as it might sound. Making everything to a precise scale of one inch to 10 feet meant gathering a lot of information from North York Hydro-Electric Commission and Ontario Hydro. The students then had to draw up proper plans for their various construction projects. In the process, they not only came up with a remarkably accurate table-model; they also learned a great deal about the subject they were studying.

All six boys were in the final year of a four-year Industrial Course, specializing in electricity. Aspects they covered while making the model included switchboard wiring and mountings; installation equipment, diagrams and specifications, transformer connections, as well as lighting and power circuits.

Building the model was Mr. Skinner's idea. "It was the first time I had tried it, but I was very pleased with the results," he says. "I hope to think of another sort of project to help next year's students build up their electrical knowledge just as quickly and enjoyably." ■

ALONG HYDRO LINES



Name Manager for Thermal-Electric Project

Appointment of Frank J. Dobson as Construction Manager at Ontario Hydro's new Lakeview Generating Station (thermal-electric) west of Toronto has been announced by the Commission. He will continue as Project Manager of the Sir Adam Beck – Niagara Generating Station No. 2 until completion of work there later this year. A graduate of the University of Toronto in civil engineering, Mr. Dobson became associated with the Commission in 1942 when he was named as a divisional engineer at the DeCew Falls project. Subsequently he served as a resident engineer at the Chenaux development on the Ottawa River, divisional engineer and then field project engineer at the Sir Adam Beck project and latterly project manager at this development.

Pioneer Engineer Passes in Toronto

A pioneer electrical engineer, Gordon Kribs, who helped draft the original plans for the St. Lawrence Power Project, died on May 13 in Toronto.

Mr. Kribs, 74, was associated with Ontario Hydro for 23 years as municipal engineer in charge of the eastern district, design engineer on the proposed St. Lawrence project and power controller during the conservation program following World War II. He was a former Chairman of the Niagara Falls Hydro-Electric Commission.

An honor graduate in engineering of the University of Toronto in 1905, Mr. Kribs was, in his early years, a consultant electrical engineer to the Canadian Government and city consultant at Saint John, N.B.

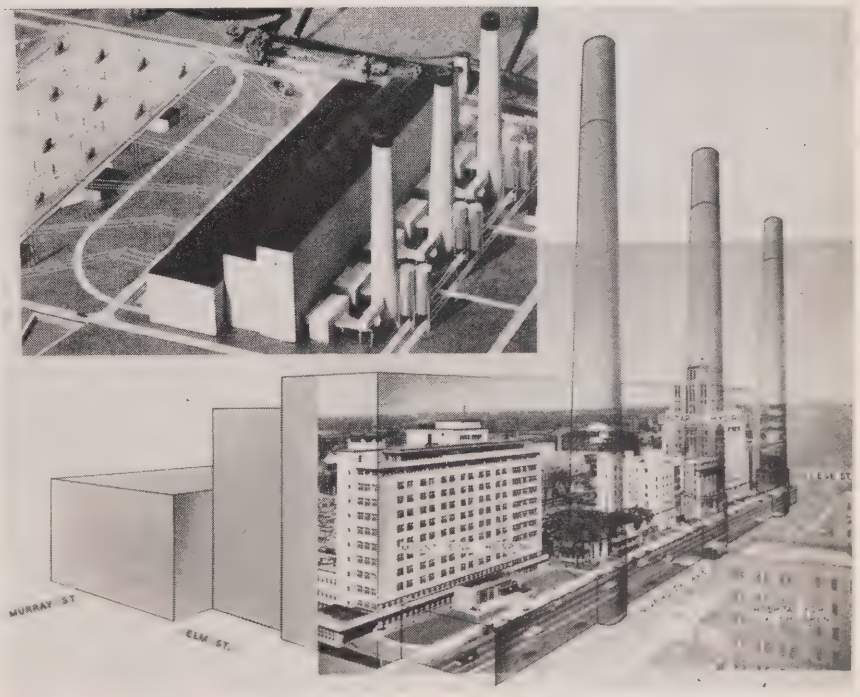
Guides Sell Bulbs To Aid Camping

Leamington District Girl Guides chose a novel but practical method of raising funds for their summer camping activities this year. More than 250 members of the local Guide and Brownie groups recently participated in a campaign to sell 1,000 bags of light bulbs. Each bag contained nine bulbs of various sizes and were offered for sale at $2 each to every home in the Leamington area.

Stratford Approves 100-Ampere Regulation

Stratford Public Utility Commission has approved a motion requiring installation of 100-ampere services in all new homes built in that city henceforth.

The Stratford Commission will also spend $15,000 this year on street lighting improvements, carrying out the program progressively in alphabetical order. In other words, streets with names beginning with "A" will be first on the schedule.



If the Lakeview Generating Station, one of the world's largest thermal-electric plants now being built by Ontario Hydro, were erected on Toronto's University Avenue, it would blanket almost an entire block, as shown above. Actually, this station is to be located on a site at the former Long Branch Rifle Ranges in Toronto Township. It is expected to have an ultimate capacity of 1,800,000 kilowatts, more than double that of Ontario Hydro's St. Lawrence Power Project. The generating station will be 936 feet in length, 293 feet in width, and 192 feet high with each of the three stacks towering to a height of 450 feet.

D. G. MOFFITT, TORONTO HYDRO, RETIRES

D. G. Moffitt, Manager of the Appliance Department, Toronto Hydro-Electric System, retired on May 30 this year. He also retired from the honorary position of Secretary-Treasurer of the Ontario Municipal-Electric Association, District No. 4, which he has held since 1950. John Irvine, Secretary-Treasurer of the Etobicoke Township Hydro-Electric Commission, succeeds Mr. Moffitt in the latter position.

Mr. Moffitt, born in Italy of Australian parentage, was educated in Australia, and attended university there as well as in England, the United States and Canada. A professional engineer, he held various technical positions in Adelaide, Australia, before joining the Australian Imperial Forces in World War I. He served in Egypt and Gallipoli, and was wounded and invalided home to Australia.

In 1919 he joined the Westinghouse Company at Pittsburgh, U.S.A., as an erecting engineer. He came to Canada during that year and joined Toronto Hydro as an electrical engineer.

During World War II he held important executive posts with the British Purchasing Commission in New York and the British Air Commission in Washington. In recognition of his war work he was appointed to the Most Excellent Order of The British Empire in His Majesty's Birthday Honors list of 1946.



D. G. MOFFITT

He returned to Toronto in 1946 and in 1951 he was appointed Secretary and Director of Public Relations to the Toronto Electric Commissioners. In 1953 he was made Manager of the Appliance Department, a position he has held continuously since that time.

Cobourg P.U.C. Raises Two-Wire Deposit

Cobourg P.U.C. has approved a motion requiring new customers applying for two-wire electrical service to pay a deposit of $10. Previously the deposit was $5 for two-wire service and $10 for three-wire installations. In asking for the increase, Manager W. A. Woods said that several two-wire customers were using rangettes, frying pans and other types of electrical equipment that resulted in bills higher than $5 a month.

Thus the utility was faced with the possibility of uncollectable bills in the case of customers who left the community without settling their accounts.

Turn on Power In Lamprey Barriers

Sea lamprey, which have plagued Great Lakes fishermen for more than 20 years, may be fighting a losing battle against Canadian and American conservation officials.

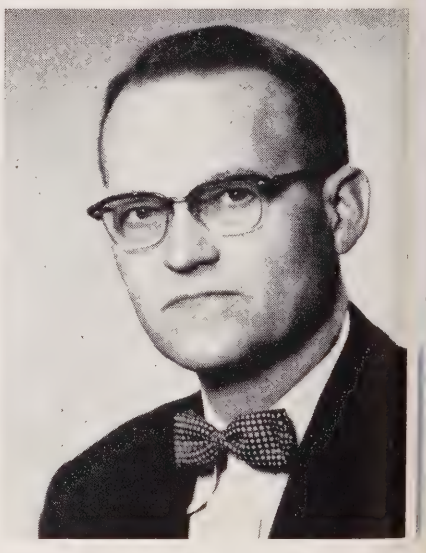
Early in May, the current was turned on in 70 electrical barriers across streams emptying into Lake Huron and Lake Superior. The barriers, which were expected to electrocute adult females on their way upstream to spawn, will not harm game fish. Both Canadian and U.S. authorities have been waging a serious fight against the eel-like fish for the past six years.

Sarnia Replaces School Appliances

Sarnia Hydro-Electric Commission has advised the local board of education of its plans to replace electrical appliances being used in the city's elementary and secondary schools. Once all appliances, including electric ranges, have been replaced, the Sarnia utility will follow a systematic procedure of exchanging equipment every two years, thus ensuring that it is modern and efficient.

Whitby Plans Substation to Meet Expansion

Erection of hundreds of new homes has necessitated construction of a new, 5,000-kva substation at Whitby. A study of the operation of various types of substations has been undertaken by Whitby P.U.C., which plans to instal a new substation on property recently acquired from the owner of a new building subdivision. The new plant is scheduled for operation in September this year.



PROF. W. O. RICHMOND, P.Eng.

Professor W. O. Richmond, P.Eng., of the department of mechanical engineering, University of British Columbia, who has been elected President of the 30,000-member Canada Council of Professional Engineers, during the Council's annual meeting in Vancouver. He succeeds C. N. Murray, P.Eng., of Sydney, N.S. The Council serves as national advisory body for Canada's provincial and territorial professional engineering organizations.

HAND-IN-GLOVE

(Continued from page 17)

the glove, and the tank containing the surrounding water. In retesting used gloves, the voltage is automatically raised at 1,000 volts a second to a maximum of 10,000 volts, which is maintained for one minute. A control mechanism automatically shuts off the power if a glove fails, and the defective glove is removed from the circuit. The test is then continued on the remaining gloves.

Another thorough visual check is made and any "suspect" gloves are destroyed. Gloves considered "suspect" after visual examination include those in which the rubber is cracked through sunlight or ozone aging, when the rubber is blistered by contact with oil, or those in which nicks, cuts or scratches might render them unacceptable to the lineman, although the gloves have passed the dielectric strength test.

Field Check

A further test – simple but effective – has been devised for use in the field. This involves inflating a glove with air, sealing it with a twist at the cuff, and listening for the tell-tale hiss of escaping air which would denote trouble. Linemen are required to make this test daily before donning their gloves.

Meticulous as this procedure may seem, the end more than justifies the means for no Ontario Hydro lineman has ever been injured on the job because of a defective rubber glove.

Designed primarily for protection, these gloves could be a hindrance rather than a help if they were awkward or uncomfortable. Periodic surveys are, therefore, conducted under the direction of Ontario Hydro's Standards Committee, to learn the preferences of the men who wear them.

Basic considerations in the design of safety gloves, in addition to their protective features, include quality of material, fit, freedom of action, bulk and strength of seams. Safety and functionalism come before fashion in Hydro's handwear. ■



V. A. McKILLOP, London (left), receives congratulations and the framed A.M.E.U. honorary membership scroll from E. V. Buchanan. Looking on is Elmo W. Curtis, Chairman of London P.U.C.

A.M.E.U. HONORS LONDON MANAGER

VERNON A. MCKILLOP, a member of the London Public Utilities Commission staff for almost 34 years and General Manager since 1952, was accorded honorary membership in the Association of Municipal Electrical Utilities at the annual Past President's Dinner, held April 25, in Toronto. He was the 24th past president to receive this honor.

The formal presentation was made by E. V. Buchanan, prominent London citizen and General Manager of the London utility for 37 years prior to Mr. McKillop's appointment. Paying tribute to the guest of honor, Mr. Buchanan said that many important and beneficial improvements had been introduced at London since Mr. McKillop had assumed the top executive post.

He referred to Mr. McKillop's election to the Presidency of the Engineering Institute of Canada in 1956 as the highest distinction it was possible for a Canadian engineer to achieve, noting that the London engineer had also served as Chairman of the Canadian Section of the American Waterworks Association in the same year.

In addition to the framed honorary membership scroll, Mr. McKillop, who served as Association president in 1942, was presented with a silver cigarette box by J. A. Williamson, President of the A.M.E.U., on behalf of the members and executive. Congratulations were also extended by W. Ross Strike, Q.C., Hydro's 1st Vice-Chairman; Bert Merson, Toronto, O.M.E.A. President, and E. W. Curtis, Chairman of the London Commission.

A native of West Lorne, Ont., Mr. McKillop joined the London P.U.C. as an assistant engineer immediately after graduation from the University of Toronto in 1924. As General Manager his responsibilities include the operation of an extensive park and recreation system, the distribution of water, and the management of the city-owned London Railway Commission, in addition to his duties with the local Hydro system. ■

TRAVELLING CIRCUS

(Continued from page 19)

Mr. Harmer described studies conducted by Hydro's Research Division, in co-operation with the Consumer Service Division, which had resulted in methods of increasing the recovery rate, and improving the delivery performance of electric water heaters while maintaining competitive energy rates. He said that four standard sizes, ranging from an economy unit with a 600/600-watt element rating to a unit with elements rated at 1500/4500 watts, had been designed and a special rate schedule drawn up.

Although the new rates would apply only to Commission-owned water heaters, Mr. Harmer expressed the view that the existence of two basic water heater plans would not be a serious matter, particularly since the saturation of flat-rate heaters in the rural areas was very low, and the new program would eventually predominate. He gave detailed performance data, predicting that the five new types were of sufficient capacity to cover the hot water requirements of almost every size of family.

Radio Equipment

The remainder of the technical program was devoted to a discussion of mobile radio equipment, led by Norman Redsell of the Etobicoke Township Hydro-Electric Commission, Chairman of the A.M.E.U. Communications Committee. Mr. Redsell informed members of the present status of the Department of Transport's proposed regulations regarding splitting of channels to 30 kilocycle spacing. He said that it was especially important that utilities contemplating the purchase of additional equipment be familiar with the new proposals.

The election of officers was a highlight of the business meeting. Rudy Senyshen, Kitchener, was elected President of the West Central Region, succeeding William Secord, Brantford. Gordon Stacey, Guelph, became Vice-President, while the directors elected were: W. D. Stalker, Simcoe; H. E. Dickinson, St. Marys, and D. N. Durward, Galt. Archie Ford, Hamilton, was elected Secretary-Treasurer.

(By Don Wright.)

CANADIAN PANORAMA

(Continued from page 11)

dating back to the times of strife with Britain. Quebec City, the provincial capital, is 350 years old this year and a number of festivities will commemorate the occasion.

Ste. Anne de Beaupre, site of the famous shrine of Ste. Anne, opened its Tercentennial Celebrations on May 4 and the occasion will be marked by an international pilgrimage for world peace. The Feast of Ste. Anne de Beaupre is celebrated on July 26.

Atlantic Provinces

In Canada's Atlantic provinces there's the beauty of a rugged coast and the myriad picturesque fishing villages fringing a countryside rich in historic tradition. There is first-rate fresh water angling and deep sea fishing and clear uncrowded beaches for the bathers.

Among the many attractions in New Brunswick is the School of Arts and Crafts in Fundy National Park. Here visitors can learn practically every type of craft while enjoying a holiday in one of Canada's most modern and scenic parks. The classes are held during July and August and one is never restricted to a time-table.

Practically every event in Nova Scotia is based on its historic traditions and background. Such attractions include the Gathering of the Clans and Fishermen's Regatta at Pugwash (July 1), the Highland Games at Antigonish (tentatively set for July 15-16), the Nova Scotia Gaelic Mod at St. Ann's (August 5-10), the Acadian Festival at Church Point and French Shore area (August 7-14), and the Nova Scotia Fisheries Exhibition and Fishermen's Reunion — "the Mardi Gras of the sea" — at Lunenburg (September 9-12).

Prince Edward Island's feature events are the Annual Lobster Festival at Summerside in mid-July and the Old Home Week and Provincial Exhibition at Charlottetown in mid-August. In Newfoundland the oldest organized sporting event in North America takes place in the annual regatta at St. John's on August 6.

(By the Editor.)

Walkerton Encourages Increased Capacity

Walkerton P.U.C. recently approved a motion regulating electrical service capacity in homes served by the utility. All new and remodelled dwellings must have services of not less than 100 amperes, while duplex and multiple dwellings must have not less than 100 amperes for each sub-service supplying each dwelling unit. When existing single, duplex or multiple dwellings change from two-wire (115 volts) to three-wire (230 volts) services, a capacity of not less than 100 amperes will be required.

To encourage such changes the Walkerton Commission will pay $25 to all customers changing services from two to three wires, and increasing existing three-wire services to 100 amperes. This cash assistance will be in the form of a cheque made payable to the contractor and the customer upon completion of the work.

Orillia's "Owl" Goes Into Retirement

A 26-foot boat, which has made hundreds of trips up and down the Severn River since it was built 30 years ago at Waubashene, has been retired from service by the Orillia Water Light and Power Commission. Borrowing its name from the utility it served, the "Owl" has worn out three engines carrying supplies, mail and passengers to the commission's Swift Rapids Generating Station. In addition it towed a scow which moved much of the heavy machinery to the Swift Rapids plant. Its successor, considered faster and more manoeuvrable, is an eight-passenger aluminum craft, equipped with a 25-horsepower motor.



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live better ELECTRICALLY

the safe, clean, modern way!

(Sample advertisement — mats available to the associated municipal utilities for use in local "Live Better Electrically" campaigns.)



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ONTARIO HYDRO News

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1958

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H.R.H. THE PRINCESS MARGARET

Canadians join in a warm welcome to Her Royal Highness, The Princess Margaret, who is paying her first visit to Canada this summer. This new official portrait by Cecil Beaton was taken in the drawing room of Clarence House, her London residence. The Princess is wearing a gown of cream tulle and gold lace, with turquoise necklace and earrings.





A TORRENT IS TAMED

Thousands of spectators witness Dominion Day inundation—an important climax in the international St. Lawrence Seaway and Power Project

CANADA'S 91st birthday this year was marked by another decisive step towards completion of the St. Lawrence Seaway and Power Project.

On the "dot" of 8 a.m., July 1, Dr. Otto Holden, Ontario Hydro's Chief Engineer, and J. Burch McMorran, Chief Engineer of the Power Authority of the State of New York, representing the joint partners in the power development, stood in a log-and-sandbag bunker while they pressed a button to detonate 30 tons of high explosive.

Their action skyrocketted tons of earth and rock into the air, and tore gaps in a 600-foot long cofferdam, which for some four years had diverted St. Lawrence water away from the site of powerhouse construction 2½ miles downstream.

Seconds later water was pouring through gaping holes in the hard-packed rock-and-earth structure — known as Cofferdam A-1 — and was rolling toward the adjoining powerhouses.

On July 4, significantly enough, while United States citizens observed their Independance Day holiday and Canada's Prime Minister, Rt. Hon. John Diefenbaker, and Mrs. Diefenbaker paid a visit to the Commission's Robert H. Saunders - St. Lawrence Generating Station, the great new expanse of water — covering an additional 38,000 acres of land in Ontario and New York State — was reaching its initial operating level. Then on July 5, at precisely 6.39 p.m. (EDT) Ontario Hydro's first St. Lawrence unit went "on the line."

After nearly four years of construction and many decades of waiting the heart was beating. But it was just the prelude to a new tide of power destined to flow into the Commission's integrated network from this international development. Four generators in the Commission's powerhouse were scheduled for operation before the end of July this year. All 32 generators (16 in each powerhouse), with an installed capacity of 1,640,000 kilowatts, are now scheduled to be in operation before the end of 1959.

Manifesting the keen public interest in the project and the July 1 flooding operation, distinguished guests of Ontario Hydro and the Power Authority, chief among them Prime Minister

(Continued on page 4)

AN IMPORTANT CLIMAX in the completion of the St. Lawrence Power Project, 30 tons of high explosive erupt releasing water into the headpond area above the powerhouses. This photograph was recorded from a bunker, 3,400 feet downstream from the cofferdam.

AN EXPLOSIVES EXPERT, Real L'Heureux (bending, left) hands a can of "Nitrone" to the skin diver, who loaded the underwater holes in the cofferdam in preparation for the "Inundation Day" operation.



(C.I.L. Photo)

FLOWING at a rate of 95,000 cfs., water pours through gaps blasted out of the cofferdam, wearing away the remaining rock and earth.





KEY FIGURES in the "Inundation Day" ceremonies, Ontario Hydro Chairman James S. Duncan, Robert Moses, Chairman of the Power Authority of the State of New York and State Governor Averell Harriman chat while awaiting the blast.



ANOTHER DISTINGUISHED VISITOR during the flooding celebrations was Canada's Prime Minister John Diefenbaker, who was conducted on a tour of the project by Mr. Duncan. Here they pause to inspect a control panel.

Leslie Frost of Ontario and Governor Averell Harriman of New York State, joined thousands of visitors and sightseers, who gathered to watch the early morning blast. Approximately 160 newsmen and photographers from Canada and the United States reported the inundation operations.

Some 85 official guests of Ontario Hydro witnessed the explosion and flooding from the top deck of the adjoining powerhouses. They included General A. G. L. McNaughton, Chairman of the Canadian Section, International Joint Commission, and other commission members; Hon. George Hees, Minister of Transport; Hon. Lionel Chevrier, former President of the St. Lawrence Seaway Authority; members of the St. Lawrence River Joint Board of Engineers, Canadian Section; members of the Canadian Section, International St. Lawrence River Board of Control; representatives of the St. Lawrence Seaway Authority and the Ontario - St. Lawrence Development Commission; members of the Ontario Legislature; executive officers of the O.M.E.A. and A.M.E.U., as well as civic officials and others.

Robert Moses, Chairman of the Power Authority, acted as host to a similar group of American guests.

At a Dominion Day luncheon tendered jointly by the Commission and the Power Authority for guests and members of the press, Prime Minister Frost eulogized the great contribution of the late Robert Saunders, former Ontario Hydro Chairman, in making the power project a reality. (Mr. Saunders' memory has been fittingly perpetuated in the naming of the Ontario Hydro powerhouse.) The Prime Minister also praised Dr. Otto Holden, Hydro's Chief Engineer, often called the "genius" of the St. Lawrence Project. Speaking on behalf of the Power Authority was Col. W. S. Chapin, General Manager.

Ontario Hydro Chairman James S. Duncan paid tribute to the vision and hard work of such men as General McNaughton and his U.S. counterpart on the International Joint Commission, Hon. Douglas MacKay. Mr. Duncan also told the audience of the great contributions made by the project's labor force and contractors.

Praises Builders

"Our contractors, like our Ontario Hydro engineers, belong to that great breed of Canadian pioneers, who have helped to build Canada," he said.

The creation of the "power lake," he continued, was the first step leading to completion of the St. Lawrence Power Project. The second would be the dedication ceremonies on September 5, and the third and final stage would be reached at the end of 1959 when all 32 generators are in operation.

"The rising waters, the first flow of which we have witnessed this morning, will not only create a headpond of about 100 square miles, and supply an even flow of water to the turbines of the power plants, but will provide a navigation channel for the new St. Lawrence Seaway, which bypasses the power project on the New York State side, through the Eisenhower and Snell Locks. This means that ships of 14-foot draft will shift from the old Canadian canal to the new channel."

Mr. Duncan also emphasized three points "from which we can all take some satisfaction."

(Continued on page 6)



PROUD of the successful culmination of the Commission's rehabilitation program, Ontario's Prime Minister Leslie M. Frost cuts a ribbon during the dedication of new Union Cemetery, between Long Sault and Ingleside. On the right are: Deputy-Reeve Ivan Eamon, Osnabruck Township, Chairman, St. Lawrence Valley Union Cemetery Board; Very Rev. George Dorey, former Moderator of the United Church of Canada, and Grant Campbell (M.P., Stormont). In the background are: Rt. Rev. Rosario Brodeur, Bishop of Alexandria; Rev. J. O. Anderson, Dean of Ottawa, Anglican Church, and Very Rev. Finlay Stewart, former Moderator of the Presbyterian Church of Canada. These religious leaders took part in the dedication ceremonies.

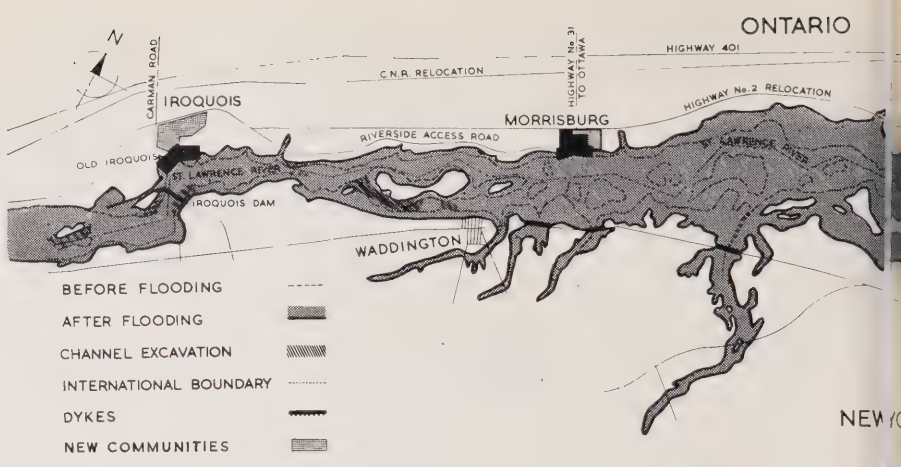
AERIAL VIEW of the forebay and powerhouses looking north to the Canadian mainland with Barnhart Island in the foreground.



"When the first sod was turned in August, 1954, we stated (1) that the waters would be raised in July, 1958 — this has been done; (2) that the first power would flow from some of our units in July, 1958 — this will take place; (3) that the project will be completed by early 1960 — it will be completed by the end of 1959.

"But even more remarkable still, away back in 1953, and speaking now to the Canadian side, we estimated that our share of the project would be $300,000,000.

" . . . And now when the project is 90 per cent completed, we still stand by our original figure. This, gentlemen, is a great tribute to the engineering skills, and to the careful estimating and cost control of Ontario Hydro."



Split-second Timing

This close adherence to schedules was evident in the blast and flooding of the headpond area, which "went off like clockwork," thanks to split-second timing and months of intensive construction planning under the supervision of Gordon Mitchell, Ontario Hydro's St. Lawrence Project Director.

The loading of explosives into Cofferdam A-1 started in mid-March. Ontario Hydro engineers chose for this purpose "Nitrone," an explosive consisting mainly of ammonium nitrate. Packed in hermetically-sealed steel containers, the explosive was loaded into 25-foot holes drilled vertically into the earth and rock dam.

As Dominion Day drew near, work on other aspects of the operation neared completion. A heavily-timbered bunker protected by sandbags was built 3,400 feet downstream from the cofferdam on Sheek Island. Parking space for some 4,000 cars was prepared along the dyke's area and eight ramps were built for easy access to the top.

In the administration building of the Commission's powerhouse a control room was set up to act as a nerve centre for the intricate system of communications and metering devices needed in the operation.

On the afternoon of June 30, some 12 hours before the sluice gates of the Iroquois Dam were scheduled to be opened and step up the flow of water downriver from Lake Ontario, the last boat locked through the old Cornwall Canal.

While Hydro crews removed lighting and power lines in the area to be flooded, Department of Transport workers cleared out canal machinery, lock gates and bridges of the old canal system. Pontoons were placed under several bridges to float them to the surface of the flood waters. In the river bed above the powerhouses, debris burned brightly in the twilight. At the cofferdam and bunker, Hydro crews made a final check of equipment.

The atmosphere on the eve of the blast was one of anticipation.

To the west along the 28 miles of shoreline cleared of human settlement for the flooding, bridges stood far inland from the river shore, awaiting the rise of the water. In many places sand had been laid to form beaches. A new marine supply depot, complete with dock, stood in the middle of a field ready for the inundation.

At 4 a.m., July 1, the operation started. Several gates of the Iroquois Dam opened, and the river flow edged up to 310,000 cubic feet a second, 100,000 feet faster than normal. Residents had been warned earlier that the velocity of flow would increase up to 40 per cent during the flood period.

By 7 a.m. police had cleared all roads leading into the flooded area, and all residents had been evacuated from an area within a two-mile radius of the cofferdam. Crowds of people walked up to the top of the dyke. Roadside stands along the way were bedecked with flags and bunting.

Flares burst into the murky sky at intervals to mark the progress towards blast time, which had been worked out to the split second to enable research engineers of Hydro's Research Division and the National Research Council to record earth tremors and air blasts.

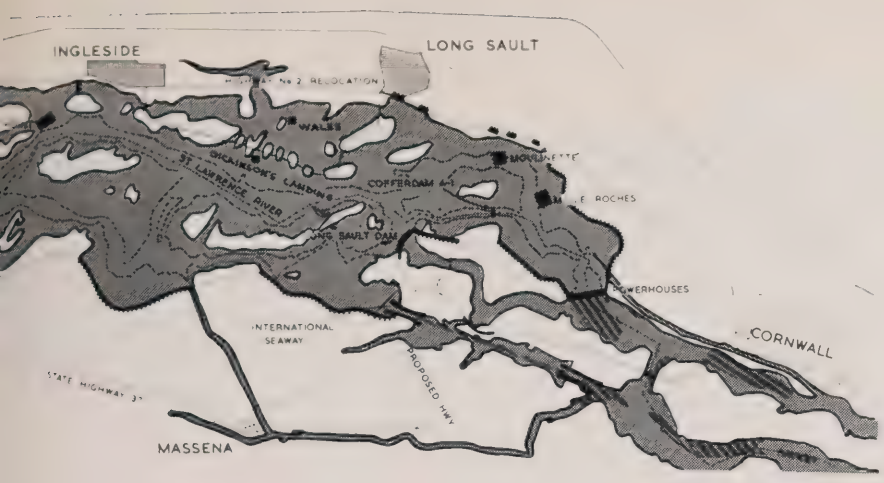
Then the "countdown" started, relayed to spectators on the power dam and dyke by loudspeaker.

At precisely 8 a.m., in the bunker on Sheek Island, Dr. Holden and Mr. McMorran, pushed the button to trigger the explosion. The blast and subsequent inundation of water were reported in words and pictures to newspaper readers and television viewers across the continent.

Four-day Celebration

The blast also supplied a "big bang" for the Dominion Day holiday

(Continued on page 35)



GENERAL ARRANGEMENT map of the International Rapids section of the St. Lawrence, showing the extent of flooding, the location of the principal power and seaway structures, as well as the communities, highway and railway relocated in this part of Ontario.

LONG SAULT, one of the new communities established by Ontario Hydro, enjoys a prized site within easy access of the new shoreline of the St. Lawrence River and relocated Highway 2, both visible in the foreground.

A.M.E.U. Summer Technical Conference speakers stress better distribution policies

MODERN METHODS

Since its inception in 1908, the Association of Municipal Electrical Utilities has been devoted to the principle of self-improvement through education. The soundness of this policy was ably demonstrated at this year's annual Summer Technical Conference at Hamilton.

Held under the auspices of the A.M.E.U. Engineering Section, the three-day conference attracted some 400 delegates including municipal electrical utility personnel from many sections of the province, as well as Ontario Hydro and commercial representatives.

After a brief word of welcome, A.M.E.U. President J. A. Williamson turned the meeting over to Harry Hyde, Chairman of the Engineering Section Board, who presided during the subsequent discussions. In his keynote address, Mr. Hyde stressed the importance of long-range planning for efficient utility operation.

Mr. Hyde cautioned that, in making changes, utilities should be fully aware of the immediate and ultimate implications. He said "The problem facing us now is not only further extension, but replacement and rearrangement."

The speaker then suggested 16 factors worthy of consideration in planning the expansion of a distribution system. He emphasized integration with existing plant, economics, and foresight in the selection of voltages.

Discussing costs Mr. Hyde warned that a plan formulated on the principle of low initial cost could ultimately prove to be more expensive if undue maintenance and replacement were required. He felt that costs should never be considered without due regard for service continuity.

Higher Voltages

Turning to the question of higher primary voltages, a subject which was to recur many times during the conference, the Engineering Section Chairman expressed the view that adoption of a higher distribution voltage was inevitable but that it should be made progressively. He advocated that, as existing systems were extended or replaced, provision could be made for conversion from 4 kv. to 12 or 13 kv. at a small extra cost. "Thus", he explained, "an extra few feet on the height of a pole, the installation of 15 kv. instead of 5 kv. insulators, the use of somewhat larger spaces and clearances — all are steps which could be taken before a firm commitment is made."

Mr. Hyde foresaw the same problems of congestion and replacement resulting from load growth at the secondary or service end of the system. He urged that steps be taken immediately by utilities, manufacturers, inspection authorities and all regulating bodies to initiate standards and practices to prepare homes and appliances for higher voltages.

"On this, our 50th anniversary," Mr. Hydro concluded "when we are on the threshold of a new phase in the electrical era, it is only by proper planning that we can meet the challenge and fulfill our duty of providing our communities with an adequate, dependable, efficient and economical electrical supply."

The inscription "Let's Modernize Power Distribution," lettered across the bottom of the identification cards worn by the delegates, held a double significance. Besides symbolizing the general theme of the conference, which was established as the many technical papers were presented, the words formed the title of an address by Robert F. Lawrence, the principal speaker.

Mr. Lawrence, Manager of the Distribution Engineering Section, Westinghouse Electric Corporation, East Pittsburg, U.S.A., discussed modern developments in terms of primary feeder voltages, higher secondary voltages, and the use of digital computers for distribution system analysis.

High Density

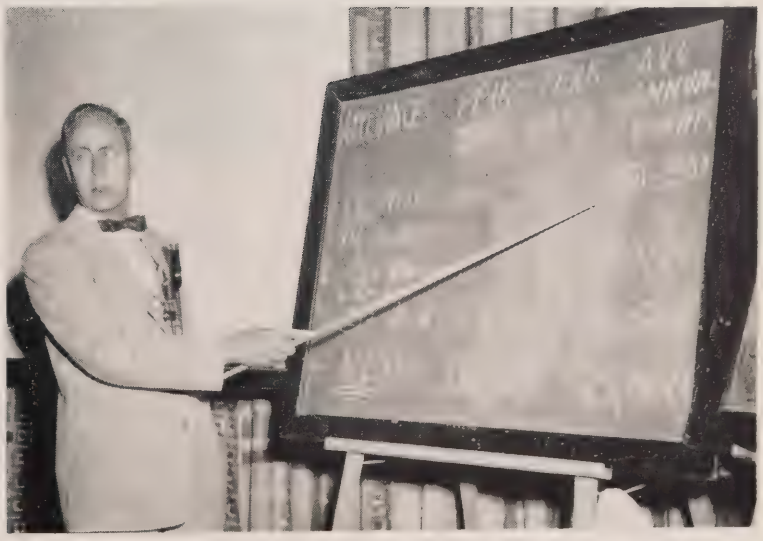
Mr. Lawrence predicted that the "truly electric house" of the future would represent an individual demand of between 15 and 25 kva., and have an annual consumption as high as 25,000 kilowatt-hours. He suggested that the resulting high density requirements could be served economically with the use of higher secondary voltages. The speaker also showed how capital investment savings as great as 25 per cent could be achieved

(Continued on page 10)

MEMBERS of this panel (left to right): Chairman G. F. Jannaway, St. Catharines; Don White, North York Township; Fred Iley, Toronto; A. L. Furanna, London; A. A. Brooks, Toronto; J. B. Annand, Oshawa, and Jack McDiarmid, Hamilton, led a discussion on the subject of electrical system planning.

HARRY HYDE, Toronto, Chairman, A.M.E.U. Engineering Section, which sponsors the conference, stressed the importance of long-range planning during his keynote address.





ROBERT F. LAWRENCE, Pittsburgh, Penn., predicted annual consumption as high as 25,000 kilowatt-hours in future "all-electric" homes during his illustrated talk.

by doubling the voltage of a conventional 120/240-volt, single-phase system.

On the subject of digital computers, the speaker claimed that their use for system analysis would soon free distribution engineers for more creative work. He said that his company had already devised a computer program to calculate the most economical rating and location of distribution regulators and capacitors for any primary circuit. Speed, efficiency and economy were among the advantages he attributed to this new use of the standard computer.

Three technical papers, each representing many hours of careful preparation and research on the part of their authors, were presented prior to Mr. Lawrence's address. These included a report on "Split Channel Activities" by Norman Redsell, Etobicoke Township, Chairman of the A.M.E.U. Communications Committee; "An Economic Study of Triplex," by B. D. Fleming, Toronto Township; and analysis of 'The Service Mast Question," by K. L. Bellamy, Ontario Hydro's Chief Electrical Inspector. W. R. Harmer, Assistant Director of Hydro's Consumer Service Division, outlined the Commission's new water heater program designed to serve its rural customers. He said that Hydro would be willing to make these heaters available, at cost, to municipal utilities upon request.

The first afternoon session was devoted to a discussion of system planning under the chairmanship of G. F. Jannaway, St. Catharines. Two papers were presented during this forum – "An Approach to Higher Distribution Voltages," by Fred Iley, Ontario Hydro, and "A Comparative Study of 4 kv. vs. 13.2 kv. Municipal Systems," by A. L. Furanna, London. Other members of the System Planning Committee participating were Don White, North York Township; A. A. Brooks, Ontario Hydro; J. B. Annand, Oshawa, and Jack McDiarmid, Hamilton.

The interest displayed in the various technical presentations was so great that, in order to permit full discussion, a special evening "buzz session" was held. Attendance at this extra-curricular get-together was almost as great as at the regular sessions. Program speakers, as well as many of the committee members, were on hand to cope with the lively flow of questions.

In the light of the growing interest being shown in the use of electricity for space-heating purposes, two papers presented on Friday morning were particularly timely. A. W. Murdock, Ontario Hydro, examined the implications of the Commission's proposed new space-heating regulations, while "A Discussion on Electric Heating" – the report of a Detroit-Edison Company symposium – was read by Henry Soutar, Windsor. At the same session, Edward Oliver, Peterborough, in collaboration with D. K. Moodies, Kingston, discussed the operation and maintenance of batteries. The results of a survey on street light practices were reported by E. L. Burnham, Belleville.

Safety Aspects

The predominance of high distribution voltages as a conference topic

THIS PRESENTATION by W. Ross Strike, Hydro's First Vice-Chairman, proclaimed John Markle, Scarborough Township P.U.C. (centre) and James Blackie, Galt P.U.C., as members of the exclusive Turtle Club, signifying that they had avoided death or injury by wearing their safety hats.



PUNCH BOWL TROPHY, awarded to the winner of the commercial members' golf tournament, was won by Rex Arnett this year. Participating in the presentation were (left to right): Bert Merson, O.M.E.A. President; Mr. Arnett; W. Ross Strike, and J. A. Williamson, A.M.E.U. President.





WHILE the technical presentations engaged the attention of the male delegates, the ladies enjoyed a tour of Hamilton and district, including a visit to the city's Royal Botanical Gardens.

was further evidenced in an address by Roy Beith, Manager of the Electrical Utilities Safety Association, who discussed its safety aspects. He outlined prescribed maintenance techniques, predicting that more and more work would be carried out in the future with live line tools in the interest of service continuity. Mr. Beith stressed the need for "tail gate" conferences so that each member of a line crew would have a complete understanding of the job, and how it was to be tackled. He also emphasized the need for extensive training before line personnel were permitted to work on high voltage systems.

Other highlights of the Friday afternoon session included an illustrated discussion, conducted by D. K. White, North York Township, and H. H. Huestis, Ontario Hydro, on "Overhead Construction on High Voltage Distribution Circuits," and a paper prepared by J. S. Ridout and J. E. Fasken, Ontario Hydro, entitled "Technical and Economic Factors in Establishing a Ground Point for a Distribution Neutral in a Delta System."

The initiation of two members into the exclusive ranks of the Turtle Club, confined to those people who have been saved from death or serious injury by their "hard hats," was a feature of the well-attended Friday evening banquet. John Markle, Scarborough Township, and James Blackie, Galt, believed to be the first municipal Hydro employees in Ontario to qualify for membership, were presented with their awards by W. Ross Strike, Q.C., Ontario Hydro's First Vice-Chairman. Mr. Strike had previously presented greetings from Ontario Hydro, acclaiming the value of the work being done by the A.M.E.U., and urging each municipal commission to promote participation by its staff in the affairs of the association.

Enthusiastic applause was accorded Controller A. H. R. McCoy, of the Hamilton City Council, and H. P. Frid, veteran member of the Hamilton Hydro Commission, who extended a warm welcome to the visiting delegates. Congratulations on the success of the conference were also offered by Bertram Merson and J. A. Williamson, Presidents of the O.M.E.A. and A.M.E.U. respectively. They later presented the new Punch Bowl trophy, on behalf of their respective organizations, to the winner of this year's commercial member's annual golf tournament. With a low net score of 72, Rex Arnett, Powerlite Devices Ltd., became the second golfer to win this award, presented last year for the first time in memory of the late E. G. "Punch" McCracken, who had been a prominent associate member of the A.M.E.U. for many years.

On the final day of the conference, R. E. Treen, Ontario Hydro, reviewed the community antenna situation and he brought members up to date on railway crossing agreements. Walter Preston, Ontario Hydro, read a report of the A.M.E.U. Load Study Committee, and the meeting was brought to a successful conclusion by William Mullin, Windsor, reporting on behalf of the A.M.E.U. Underground Committee. — *by Don Wright.*



TWO YOUNG PATRONS wave a joyful salute to the photographer as Bob-Lo Island's ferris wheel starts operation on power supplied by the new underwater cable.



THIS JAUNTY LITTLE MISS isn't concerned with electrical service details. All she knows is the fact that the candy floss tastes "good" — and the "rides" look so exciting that she debates with herself: "Golly, what one will I go on first?"

Ontario Hydro inaugurates service to Detroit River amusement park

IN the exciting history of the Detroit River's Bob-Lo Island, there have been many colorful landing parties. During the 18th Century, tribes of Huron Indians arrived in their canoes to set up a camping ground . . . Then followed French missionaries . . .

In the War of 1812, Commodore Perry landed half the forces of General William Henry Harrison there, preparatory to the invasion of Canada . . . Soldiers swarmed over the shores again during the Canadian Rebellion of 1837-38 . . . And, just prior to the American Civil War, the island became a famous "stop-over," where escaped slaves were smuggled under cover of darkness on their way to the Canadian mainland.

Recently, Ontario Hydro was represented in another "landing-party" on Bob-Lo Island. This group didn't wear war paint, nor did it carry muskets. But it was still colorful Armed with huge cranes, ropes and other tools, the party signalled the inauguration of Hydro service on the island.

An essential preliminary was the laying of an underwater cable across the Detroit River from the Canadian mainland at Amherstburg. In its own way, this operation was just as exacting as landing an invasion force of troops. Here is the story . . .

First, the need for the power must be understood. Since 1898, all except 24 of the island's 240 acres have been used as an international amusement and recreation centre. When the centre was first opened to the public, there was only one ride — a steam-



FRIENDLY I

driven merry-go-round. Last year, there were 27 rides, powered by five diesel generators. These generators could produce only 460 kilowatts, and, with further expansion planned, the Island of Bob-Lo Company sought the assistance of Ontario Hydro.

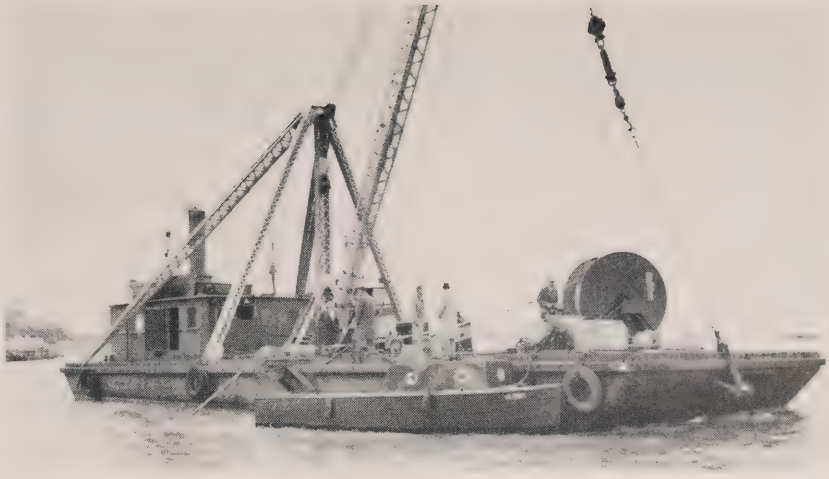
Underwater Cable

Discussions with Ontario Hydro representatives established the fact that the island company would be responsible for the cost of providing the circuit to the island. Initial studies showed that this cost, in the case of an overhead circuit would be prohibitive. To avoid interference with shipping in the area, the crossing towers would have had to be 200 feet high. So last fall it was decided to lay an underwater cable capable of supplying a maximum demand of 1000 kilowatts.

The Commission, with its experience in this sort of specialized undertaking, agreed to provide consulting and advisory services on the project. C. J. Moull, Distribution Engineer for the Commission's Western Region (and a key man in Lake Erie's Pelee Island installation of 1955), was appointed Hydro's chief consultant.

He discovered that the Detroit River posed unique problems. Even after St. Lawrence Seaway dredging operations were completed, the maximum depth of the relevant stretch of water would be only 32 feet. This would give passing ships a mere five-foot clearance over the cable, affording little protection from the turbulence produced by the ships' propellers. To make matters worse, the bed of the river was studded with hard rock. The prospect of the cable being pounded against the rock when ships churned up the water called for

(Continued on page 31)



DURING the cable-laying operation, a launch (foreground) and a tug (partially obscured) carefully nudged the barge across the river. The cable reel is visible on the deck of the barge.



LAST SECTION of cable was "paid out" by hand as the barge had to stop off-shore.



BARGE CREW gets a report by radio from the diver inspecting cable on the river bottom.



MARINE SUPERINTENDENT John Goodchild dons a diving suit to correct alignment of underwater cable.

ASION

By E. B. BOLWELL

ANOTHER DEBUTANTE



WHETHER it is in honor of a pretty young lady or a handsome new building, a "coming-out party" has the same basic elements. Take the case of Ontario Hydro's new East Central Region headquarters at Belleville. When it was officially opened recently, the building drew the attention accorded any successful debutante – admiring glances, complimentary remarks and even gifts of flowers.

And the compliments were well-deserved. The new, two-story L-shaped structure at Dundas St. and Herchimer Ave. in the Quinte City is admirably equipped to administer the electrical requirements of the Commission's growing East Central Region. Embracing an area of some 10,400 square miles from Ajax on the west and beyond Kingston on the east and from Prince Edward County in the south to Haliburton and Bancroft in the north, the East Central Region serves 36 municipalities, 15 rural

SITUATED on No. 2 Highway on Belleville's eastern outskirts, the new two-story East Central Region headquarters building provides some 40,000 square feet of floor space.



operating areas and 28 direct industrial customers. Reflecting the diversified economy of this area of Ontario — ranging from a prosperous industrial and agricultural belt in the south to iron ore and uranium mining operations in the north — is the region's growing electrical load. The sum of all customers' peak loads for December, 1957 totalled 354,189 kilowatts — an increase of 170 per cent over the 1948 total.

Phenomenal Growth

Two functions marked the official opening of the new headquarters. Participating in the main inauguration event, W. Ross Strike, Hydro's First Vice-Chairman, cut the traditional red ribbon. Mr. Strike said the phenomenal growth in electrical demands in all of the Commission's nine regional divisions established in 1947 justified Hydro's decision to decentralize its operations. As an example, Mr. Strike pointed up the fact that the East Central Region at the end of its first full year of operation — 1948 — served, directly and indirectly, a total of 87,859 customers. By the end of 1957 this figure had risen to 151,862 — an increase of 72 per cent.

Other platform guests included Mayor Gerald B. Hyde, who extended greetings from the City of Belleville; Roscoe Robson, M.P.P. (Hastings East); Ontario Hydro Commissioners Lt.-Col. A. A. Kennedy and D. P. Cliff; General Manager, A. W. Manby, and Assistant General Manager — Administration, J. M. Hambley; H. S. Graham, Newcastle, Vice-President, E.O.M.E.A., and J. H. Page, Trenton, President, Eastern and East Central Region, A.M.E.U.

Manager E. G. Gurnett officiated as master of ceremonies while Rev. R. W. T. Middleton, President of Belleville Ministerial Association, offered the dedicatory prayer. Guests included representatives of business, industry, civic and provincial governments and municipal utilities in the region, who were escorted on tours of the new headquarters prior to the opening ceremony. Concluding the inaugural event, some 900 city and district citizens inspected the new building during an evening "open-house".

Under One Roof

The buff-brick structure with an attractive stone-framed main entrance includes some 40,000 square feet of floor space. For the first time in several years, the East Central staff of approximately 140, exclusive of field personnel, will be accommodated under one roof. Large, double-glazed windows provide ample lighting. Recessed fluorescent fixtures and a tasteful color scheme provide an attractive interior appearance. On the functional side, all power and communication facilities are contained in an under-floor duct system, while the air-conditioning equipment is designed to operate efficiently regardless of the flexible arrangement of offices. An

(Continued on page 36)

Ontario Hydro officially opens new regional headquarters

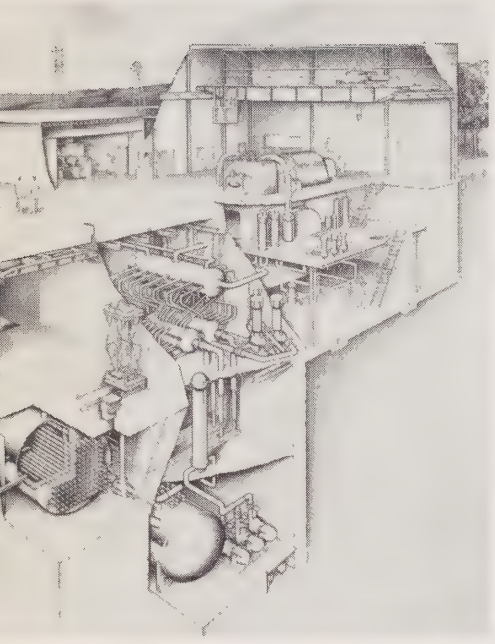
TOURING the building these guests heard a description of the Commission's Trent River generating facilities by L. A. Coles (left). The group includes (front row, from left): Mrs. Alice Turner, Secretary, Bath H.E.C.; her husband, H. A. Turner; Reeve George Spencer, Frankford; Jack Yanover, Belleville, and Chairman George Montgomery, Frankford Hydro.





W. ROSS STRIKE, Hydro's First Vice-Chairman, called on Manager E. G. Gurnett (left) and the Commission's General Manager, A. W. Manby, to help cut the red ribbon.

POWER FOR TH



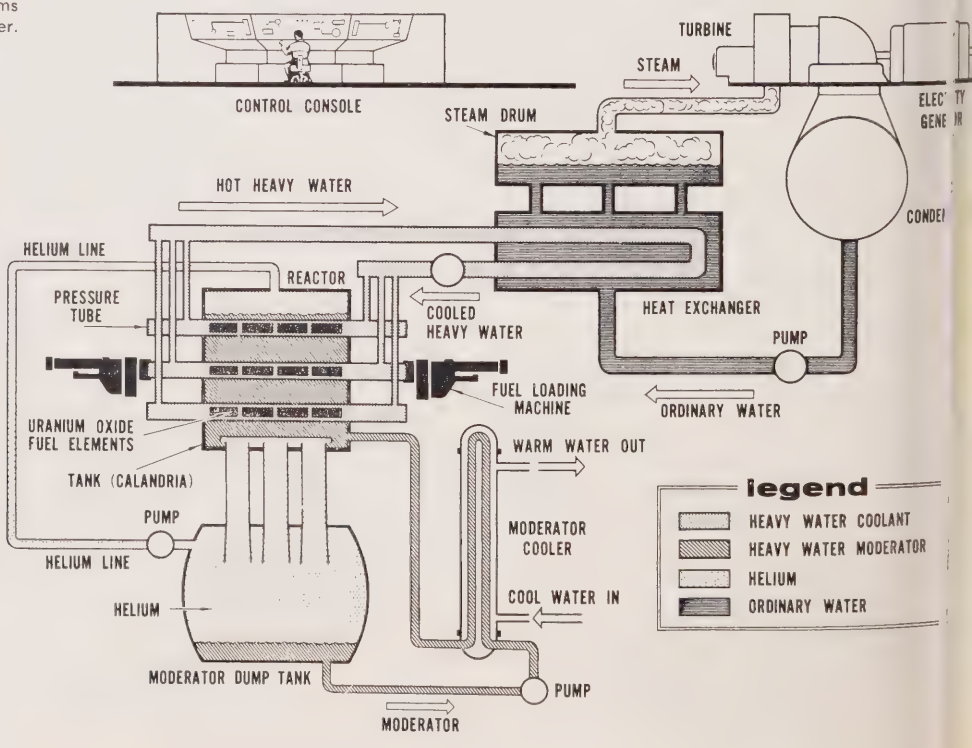
CANADA'S first nuclear-electric station, known as NPD (Nuclear Power Demonstration), will have a capacity of 20,000 kw. It is being built near Hydro's Des Joachims Generating Station on the Ottawa River.

RESUMPTION of construction at the site of Canada's first nuclear-electric generating station, during the present summer, was announced recently by Atomic Energy of Canada Limited, Canadian General Electric Co. Ltd., and Ontario Hydro – the three partners in the project.

Known as NPD (Nuclear Power Demonstration), the plant will produce 20,000 kilowatts of electricity that will be fed into the Ontario Hydro system when the station goes into operation in 1961.

The NPD station will not produce power at a cost competitive with that produced by coal-burning power plants. It will, however, serve as a pilot plant for stations with outputs of 150,000 to 300,000 kilowatts of electricity. Atomic Energy of Canada Limited recently set up a Nuclear Power Plant Division in Toronto to produce a preliminary design for a 200,000-kilowatt atomic power station known as CANDU (Canadian Deuterium Uranium Reactor).

Work on the NPD site, which is about two miles from Rolphton, Ontario, and 150 miles west northwest of Ottawa, was stopped last year to allow important technological advances to be incorporated in the design of the station's reactor. The basic system pioneered at Chalk River – the use of natural uranium



CORE of the NPD reactor is a horizontal, aluminum tank about 13 feet long and 15 feet in diameter. Through this tank run 132 aluminum tubes into which are inserted zirconium alloy pressure tubes containing the uranium (in the form of uranium oxide) fuel elements and the heavy water coolant.

FUTURE

for fuel and heavy water for moderator – has not been altered in the redesign of the station, but a different type of vessel to contain the fuel and a new method of charging and discharging the fuel are to be used.

Whereas the original NPD reactor was to have a vertical steel pressure tank to contain the uranium rods and the heavy water moderator, the core of the new reactor is to be a barrel-shaped, horizontal, aluminum tank about 13 feet long and about 15 feet across its greatest diameter. Through this tank run 132 aluminum tubes into which are inserted zirconium alloy pressure tubes that contain the fuel rods and the heavy water coolant. The latter flows over the fuel rods, becomes heated, then travels to a heat exchanger or boiler where the heat is transferred to ordinary water to make steam. The steam is fed into a conventional steam turbine that drives an electric generator. The heavy water is recirculated through the reactor to carry more heat to the heat exchanger.

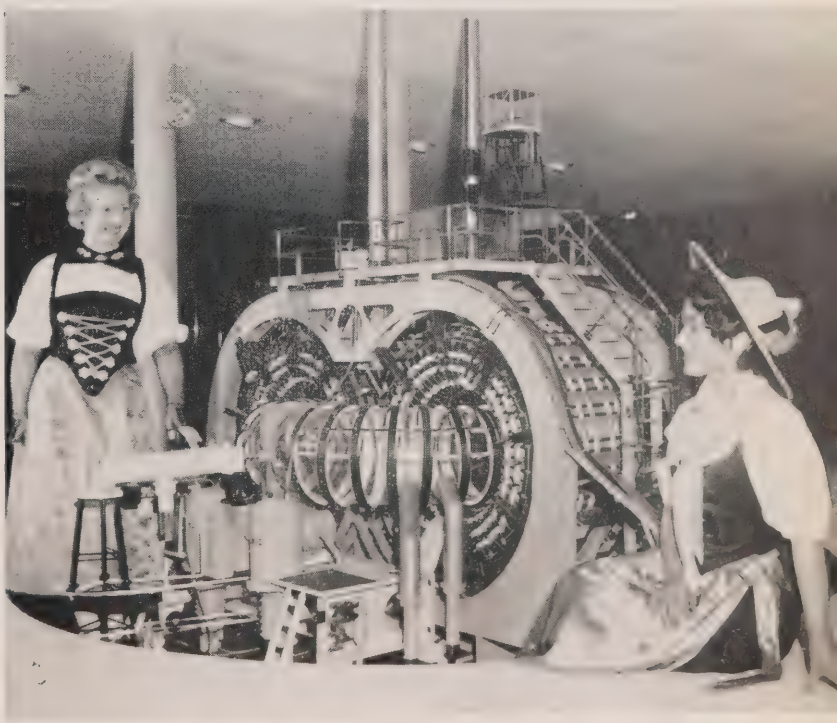
The other major design change involves the method of inserting new fuel rods and removing used rods. In the original design, the rods were to be inserted and removed from the top of the reactor. In the new fuelling system there will be a remotely-operated fuelling machine at each end of the reactor vessel, thus permitting the loading and unloading of fuel rods from both ends. This arrangement will give a more even distribution of fresh and partially used fuel throughout the reactor and permit the most efficient use of the uranium. The fuelling operation will be carried out while the reactor is under full power. ■

BRITAIN'S ZETA AT BRUSSELS

THIS working model of Britain's Zeta (Zero Energy Thermonuclear Assembly) – the unique apparatus at Harwell that has advanced world research on the harnessing of power through nuclear fission – is featured in the British pavilion at the current Brussels International Exhibition.

The two Swiss girls watching the model in operation are Miss Rose Stutler (left) and Miss Rita Kueltel.

As a result of research on Zeta, British scientists hope that this apparatus may eventually enable them to turn the oceans of the world into a limitless source of power.



FOUR St. Catharines delegates (left to right): Vernon May, F. R. Cavers, Ray Pfaff, and Frank Jannaway, are shown arriving by boat for the meeting (as guests of Mr. Cavers aboard his cruiser).



BRIGHT ARMOR

An appeal to Ontario electrical utilities to keep their "armor bright" keynoted a brief address by W. Ross Strike, Ontario Hydro's First Vice-Chairman, during the summer general meeting of O.M.E.A. District 5.

Held at Burlington, the semi-annual gathering of the district association drew an attendance of some 75 delegates, including O.M.E.A., A.M.E.U. and Ontario Hydro representatives. President C. R. Buss, Thorold, conducted the afternoon business session and presided at the concluding banquet.

Warning of the "growing cloud that we must watch," Mr. Strike referred to the expansion of Ontario utility operations, involving an increase in revenues and assets and, in many cases, larger operating surpluses.

"We must be prepared," the speaker stated, "to show that our surpluses are not any larger in percentage than they were formerly, otherwise we are going to have a demand for lower retail rates."

Thus utilities must establish budgets and adhere to them. By this method they can set aside an item of unallocated funds to provide for unexpected expenditures. At the same time, it was important to extend the preparation of the budget as far down the scale of staff as possible as one method of keeping the line of communication between management and staff. This would keep employees informed of each phase of utility operation and encourage them to be as "saving of time and materials as possible."

Turning to the question of public relations, Mr. Strike referred to a recent advertisement published by the Toronto Hydro-Electric System, which clearly presented details of the utility's financial and operating position for 1957.

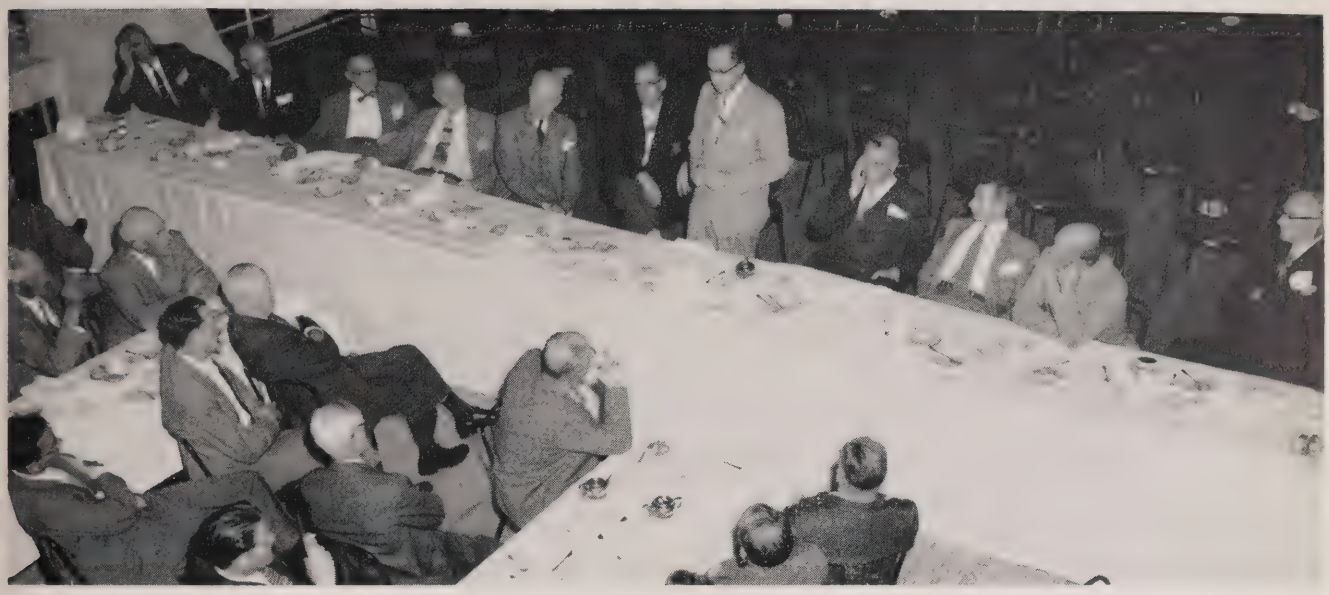
"That advertisement, in my opinion, was a fine example of how a utility can keep its customers informed and a good way of showing that its affairs are being carefully administered," Mr. Strike observed. He also stated that "other municipal commissions keep the municipal council and local press informed by arranging annual dinners or meetings at which the future plans of the utility are discussed and reported."

Publicly owned electrical systems should not be afraid of investigation, but should constantly strive to keep their organization "efficient, strong and thorough," he continued.

"We must think of where we are going, and above all keep the public advised of our operations and our plans for maintaining good service."

ONTARIO HYDRO'S FIRST VICE-CHAIRMAN STRESSES IMPORTANCE OF GOOD PUBLIC RELATIONS

AFTER-DINNER SPEAKER was Dr. J. E. Hodgins, Hamilton. Head-table guests included (left to right): Norman Craig, Burlington; Ontario Hydro Commissioner D. P. Cliff, Roy Pierson, Brantford Township; A.M.E.U. President J. A. Williamson, Hydro's First Vice-Chairman, W. Ross Strike, President C. R. Buss, Dr. Hodgins, O.M.E.A. President Bert Merson, F. R. Kaupp, Merritton; Hydro Commissioner Lt.-Col. A. A. Kennedy and Mayor John Lockhart, of Burlington.



Delegates registered keen interest in an address by W. Roy Harmer, Ontario Hydro's Assistant Director of Consumer Service, who dealt comprehensively with the Commission's policy on flat rate electric water heaters.

Another important item on the agenda was a panel discussion on the subject of requiring domestic customers to install 100-ampere electrical services. Serving as panel moderator, F. R. Kaupp, Merritton, led the session, which featured a debate on the question of whether such a requirement is "dictatorial or in the interests of the public and the utility?"

Favor Regulation

Two panel members, Harry Foy, Manager, Electric Service League of Ontario, and A. E. Fort, Port Colborne, favored enactment of such a regulation, while their panel partners,

(Continued on page 20)



DURING a recess, W. B. Elliott, St. Catharines, (left) was noted discussing aspects of his report on labor relations with two Burlington representatives, N. R. Craig and R. M. McKenzie.



IMPORTANT but not as serious as might be indicated by the expressions of these panel members (left to right): H. E. Brownhill, Stamford Township; J. A. Williamson, Niagara Falls; F. R. Kaupp, Merritton; A. E. Fort, Port Colborne, and Harry Foy, Toronto, was the enthusiastic discussion on the question of requiring domestic customers to install 100-ampere services.

Harold Brownhill, Stamford Township, and J. A. Williamson, Niagara Falls, expressed opposing views. Their divergent opinions acted as a spur to enthusiastic delegate participation during the ensuing discussion period, which was brought to a conclusion by President Buss to maintain the agenda schedule.

W. B. Elliott, St. Catharines, presented a comprehensive review of the district association's labor relations survey program. The speaker pointed out that this program was designed to help municipal utilities in the district to maintain fair and equitable working conditions for its employees and to enable utility commissioners to intelligently assess union demands during contract negotiations. "This information," he said, "will have little value unless all municipalities in the district and throughout the O.M.E.A. participate in this program." He reported at this juncture that the Labor Relations Committee of the O.M.E.A had recommended that all municipalities join such a plan, a recommendation which received unanimous endorsement at this year's annual meeting in Toronto. He indicated that the 1958 committee was seeking to "further this recommendation." The Select Committee on Labor Relations of the Ontario Legislature was also considering the resolution from District 5, which was endorsed at this year's annual meeting that certification of unions be only as a result of secret ballot. Mr. Elliott also mentioned the possibility that the district executive committee would, at the next annual district meeting, present a proposal that decisions of arbitration boards be subject to review in the regular courts.

Favorable Position

Roy Beith, Toronto, Manager of the Electrical Utilities Safety Association of Ontario, presented a report on the success of the association's series of two-day courses on "accident prevention through informed supervision." Courses had been held in many Ontario centres in the past year, he said, and had been attended by approximately 500 utility foremen or supervisors.

These courses were evidently effective in helping to reduce the incidence of electrical utility accidents, Mr. Beith continued. Payments for direct medical aid and compensation were down by some $55,000 for the first 5½ months this year from the figures for the comparative 1958 period.

"We should not start patting ourselves on the back," Mr. Beith cautioned, "as one accident could wipe out this favorable balance."

Concluding the business session, delegates approved a resolution submitted by St. Catharines P.U.C. urging the O.M.E.A. to investigate the possibility of obtaining a group public liability and property damage policy for an amount ranging from $500,000 to $1 million. The resolution was predicated on the argument that the present coverage through Ontario Hydro was inadequate in view of the fact that court settlements for any type of accident had greatly increased in the past five years.

Guest speaker following the banquet was Dr. John Hodgins, Dean of Engineering at Hamilton College, McMaster University, who spoke on the "Education of an Engineer." Civic greetings were extended to the delegates by Burlington's Mayor John Lockhart, while brief addresses were also given by O.M.E.A. President Bert Merson and A.M.E.U. President J. A. Williamson. — *by B. L. Graham.*

SPACE-HEATING PROGRAM

ONTARIO HYDRO ANNOUNCES REMOVAL OF SERVICE CHARGE



W. R. HARMER, Assistant Director, Consumer Service Division, outlined the Commission's new policy on electric space-heating.



ROY BEITH, Manager, Electrical Utilities Safety Association, another speaker, checks over a copy of his address while Ray Pfaff, St. Catharines (left); J. A. Williamson, Niagara Falls, A.M.E.U. President, and William MacDonald, Toronto, a commercial member, look on.

ONTARIO Hydro's new policy on electric space-heating was outlined at the 11th annual meeting of the Toronto Region, A.M.E.U., by W. R. Harmer, Assistant Director, Consumer Service Division.

He said that the Commission had cancelled the restrictive service charge of $4 a kilowatt a month, and had authorized electric space-heating in accordance with the following conditions:

"The energy used for all forms of electric space-heating for commercial and power services will be included with the normal load, and billed at the standard rate applicable in each case;

"For domestic services, electric energy used to heat a portion of a dwelling not exceeding 25 per cent of the floor area will be included with the normal load, and the customer's entire use of energy will be billed at the standard rates applicable;

"Electric energy used to heat the entire dwelling or a portion of a dwelling in excess of 25 per cent of a floor area will be metered separately, and billed at a special house-heating rate. For Ontario Hydro's rural customers, this house-heating rate will be 1.5¢ net a kilowatt-hour. For municipal utility customers, the house-heating rate will be established by the municipality and the Commission at a rate not less than 1.5¢ net per kw-hr."

Mr. Harmer recalled that the Commission first approved the service charge for space-heating in 1924. He said it was purposely prohibitive and intended to prevent the use of electricity for house-heating. At that time, the chief method of application was to insert electric heaters in a central furnace or boiler, and distribute hot air or hot water by conventional ducts or pipes. Such installations, the speaker went on, would have been very inefficient and costly to both utility and customer.

Space-Heating Progress

Since then, particularly during the past six or eight years, there had been tremendous strides made in the field of electric house-heating, Mr. Harmer said. New equipment and methods of application, together with recognition of the value of adequate insulation, had greatly reduced individual demands.

Within the past two years, competition from natural gas had emphasized the need for a new approach to all aspects of electric energy sales, he continued. In a period of rising costs,

(Continued on page 36)

STATISTICS CAN BE LIVELY

Accounting procedures shared the spotlight with the St. Lawrence Power Project as a near-record number of delegates gathered at Cornwall, June 19 and 20, for the seventh annual A.M.E.U. Eastern Ontario Accounting and Office Administration Conference. They met in an atmosphere of anticipation as the "Seaway City" prepared to celebrate "Inundation Day" some two weeks hence.

The delegates, many of them accompanied by their wives, were first conducted on a tour of the power project area where they were able to obtain a last-minute view of the vast headpond area, cleared and ready for the flooding. Their itinerary also included the Long Sault dam, and the handsome new towns of Long Sault and Ingleside – testifying to the success of Ontario Hydro's extensive rehabilitation program.

Following the tour, statistics, work orders, depreciation and financial statements became the topics of discussion as delegates quickly settled down to the facts and figures of electrical utility operation.

The dinner address by guest speaker Frank Wilcox, a well-known chartered accountant, was indicative of the high calibre of discussion which the conference was to feature. He gave a comprehensive review of the factors involved in the analysis of financial statements and reports, outlining the pitfalls to be avoided and the type of material to incorporate. The speaker urged that planned and systematic projections be substituted for the practice of basing next year's program on the previous year's results.

Delegates received a warm welcome from Chairman Ross R. Stiver, Belleville, and from Public Works Commissioner R. C. Adams, in the absence of Mayor L. G. Lavigne of Cornwall. President J. A. Williamson added his word of welcome to "so important a segment of the A.M.E.U.," while an invitation to attend the

ONE of the highlights of this year's conference was a tour of the St. Lawrence Power Project. Delegates posed after viewing the powerhouse and removal of the downstream cofferdam.





Diversified agenda highlights A.M.E.U. conference

Western Division accounting conference, to be held September 25 and 26 at Niagara Falls, was extended by J. E. Coubrough, Hamilton.

Public Relations

A film illustrating the value of good public relations in the efficient operation of a utility got the accounting sessions off to a good start. This was followed by a paper on statistics presented by Dan Gorrie, Ontario Hydro's Municipal Accounting Supervisor. Mr. Gorrie stressed the use and importance of statistics in the preparation of budgets, plant records and financial statement analysis. Revenue and expense budgets, capital budgets and cash budgets were discussed separately.

Another important subject which Mr. Gorrie dealt with was the use of charts and graphs to bring statistics "to life." He warned that care must be exercised to avoid presentation of misleading statistics, concluding his address with the story of the statistician who was drowned in a river, "the average depth of which was only two feet."

Roy Charles, Ottawa, and W. H. Gibbie, Oshawa, teamed up to describe the function of efficient work order systems in facilitating accounting operations in large or small utilities. Both speakers illustrated the methods of handling work orders in their respective offices to determine the actual cost of each installation or project.

Several aspects of depreciation, as they affect utility accounting procedures, were investigated during a panel discussion convened by George Huston, Municipal Accountant, Georgian Bay Region. Other members of the panel included Glen Williams, Gravenhurst; Robert Lackey, Orangeville; Harvey Bongard, Orillia, and Stewart Holt, Midland.

Explaining the object of the panel, Mr. Huston pointed out that there are 144 cost municipalities in the East Central, Eastern and Georgian Bay Regions and that 62 per cent of these had populations of less than 2,000 persons. "For this reason," he said, "it is the desire of this panel that we get across to the greatest number, information that will assist them in more clearly understanding what is behind this business of depreciation and, consequently, simplify their accounting problems."

Gradual Exhaustion

Depreciation was defined as "the gradual exhaustion of the service value or usefulness of fixed assets, which is not restored by maintenance practices and results from use, decay, obsolescence, casualty and inadequacy." Each member of the panel then suggested a specific problem open to various interpretations and the discussion was taken up from the floor.

Ontario Hydro's Insurance Officer, Gordon Cumming, provided useful advice on the essential but thorny problem of providing adequate insurance coverage at a reasonable cost. He enumerated the various policies available and discussed them in terms of cost, coverage and general value. The speaker assured delegates that the Commission would gladly assist any of the associated municipalities with their specific insurance problems.



PRESENTATION of a paper on "work orders" by Roy Charles, Ottawa, (left) was followed by a discussion on the subject with several delegates, including Neil Upshall, Bill McLaren, Etobicoke Township; John Cookson, Port Arthur; Arthur Bertrand, Sudbury, and George Phillips, Smiths Falls, participating.

Guest speaker at the final luncheon was Dr. D. K. Grant, Assistant Director of Medical Services, Ontario Hydro, who regaled the delegates with an address entitled "Sitting on a Cushion on a Sinking Ship." While he tempered his remarks with humor, Dr. Grant drew a sobering picture of the deteriorating effects of a sedentary "way of life" on physical and mental well-being. He suggested a ten-point remedial program, including such drastic "reforms" as parental discipline, temperance in the use of alcohol and tobacco, regular exercise and more stringent "girth-control."

Concluding the conference, Chairman Stiver announced that the committee had unanimously recommended John M. Campbell, Gananoque, as Chairman of the 1959 conference. George A. Phillips, Smiths Falls, was nominated as Secretary-Treasurer.

— by Don Wright

NIAGARA IN A NEW

On June 20 this year, the curtain went up on another "act" of the Niagara Falls illumination drama.

Promptly at 10 p.m. that evening, Hon. Charles Daley, Ontario's Minister of Labor and Chairman of the Niagara Parks Commission, joined hands at a small panel with New York State's Lieutenant-Governor George B. DeLuca to inaugurate a new floodlighting system — 10 times more powerful than its venerable predecessor.

Then amid a burst of rockets from both banks of the Niagara River, 20 new weatherproofed projectors came on, bathing the twin cataracts in a white brilliance almost rivalling daylight. Symbolizing the international character of the world-famed falls and the breathtaking illumination spectacle itself, this ceremony in Ontario's Queen Victoria Park was witnessed by hundreds of spray-drenched Ontario and New York State spectators.

The international atmosphere was heightened further with musical selections provided by the Niagara Falls, Ont., Kiltie Concert Band and the Niagara Falls, N.Y., Naval Air Station Band, while members of the U.S. Marine Corps and the Lincoln and Welland Regiment formed a Color Guard. On a specially erected dais facing the falls, representatives of two nations, including officials of the Niagara Falls Illumination Board, which administers the novel lighting project, watched as the cataracts were united in a single band of light.

This dramatic moment followed a brief formal inauguration with Dr. John Fisher, noted public speaker and executive director of the Canadian Tourist Association, capably filling the role of master of ceremonies.

During his brief address, Mr. Daley described the event as a triumph of "co-operation and mutual understanding between members of the Illumination Board."



NIAGARA'S new floodlighting projectors are approximately 10 times brighter than their predecessors but consume the same amount of power. Ten projectors illuminate the Horseshoe Falls.

"Great credit," he continued, "goes to the cities at this border, the Niagara Parks Commission and Ontario Hydro, which supplies the power for the spectacle."

Blazing Proof

Lieutenant-Governor DeLuca, who read a message of congratulations from Governor Averell Harriman, described the event as "blazing proof that Canadians and Americans proudly share the majestic beauty of one of the world's great natural wonders."

Emphasizing the truth of this statement, Mr. Daley and Mayor Calvin Keller, Niagara Falls, N.Y., Chairman of the Illumination Board, stepped from the dais momentarily during the ceremony to jointly unveil a plaque commemorating the inauguration of the new lighting system.

Conveying greetings on behalf of Ontario Hydro, Chairman James S. Duncan said the co-operative lighting project was another manifestation of the international amity existing between Canada and the United States. The Commission was also represented on the platform by Manager J. R. McCullough, Niagara Region, a member of the Illumination Board. Civic greetings were extended by Mayor Ernest Hawkins, Niagara Falls, Ont., while the invocation was offered by Monsignor P. J. Tronolone, Niagara Falls, N.Y. Just prior to the lighting ceremony, Rev. William Fingland, Niagara Falls, Ont., pronounced the benediction.

Research Program

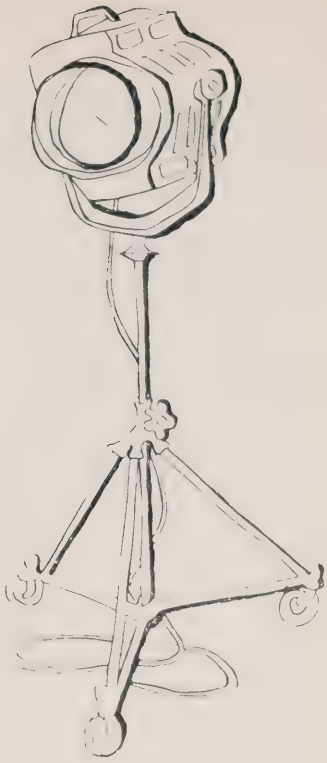
For members and officers of the Niagara Falls Illumination Board it

GHT

Modern floodlighting system gives added brilliance and dramatic effects to the nightly illumination spectacle



FOUR HORIZONTAL bands of light and one circular beam spotlight the American and Bridal Veil Falls. The 20 new projectors, each operating at 150 amperes, have a total load of 375 kw.





NEW YORK STATE'S Lieutenant-Governor George DeLuca (left) and Hon. Charles Daley, Ontario Minister of Labor, jointly officiated at the inauguration of the new floodlights.

was an extremely "proud and happy" moment – representing the successful culmination of an exhaustive program of research and testing. The award of the $154,000 contract some two or more years ago was the prelude to a thorough investigation of various types of light sources and color media.

Mounted on Surge Tank

Like their smaller counterparts, which furnished the nocturnal panorama for more than three decades, the new 9½-foot high projectors have been mounted atop the surge tank of Hydro's Ontario Power Generating Station.

Each searchlight, designed to give a maximum beam intensity of 210 million candlepower, consists of a high intensity carbon-arc. The units also incorporate remotely controlled electro-mechanical color changing devices and wide beam arrangements to permit a large range of dramatic lighting effects.

Illumination "Magic"

This color-changing equipment has placed new magic at the fingertips of the illumination operators.

Each of the searchlights has five, 37-inch square filters, fitted with sheets of cinemoid – a robust type of gelatin plastic – in five basic colors: amber, blue, pink, magenta and green. The filters are held in metal frames attached to the front of each searchlight. These metal frames are connected electrically to a remote master control panel, which selects and brings the color frame into position in front of the searchlight. Thus by using these color frames either singly, in pairs, or three together it is possible to produce a variation of 15 distinctly different colors.

Panoramic View

A complete panoramic view of the entire Falls area is achieved by using multi-colored bands of light in either

(Continued on page 35)

OVER THE BORDER



FIRST STEP in relocating the Ontario Hydro-Niagara Mohawk tielines was the stringing of 4000 feet of nylon rope across the Niagara River by one of the Commission's helicopters visible in the foreground.

ONTARIO Hydro's versatile helicopters – already accustomed to a diversity of tasks ranging from their original line patrol duties to mercy flights – are adding to their list of accomplishments.

Now they're helping to string transmission lines across the Canadian-United States border with the aplomb of veterans.

Quite recently one of the Commission "whirlybirds" picked up one end of a 4000-foot length of nylon cord on the Ontario bank of the lower Niagara River and carried it across the deep gorge to New York State.

That was the first step in the relocation of transmission lines interconnecting the Ontario Hydro-Niagara Mohawk Power Corp. systems in the Niagara area. The movement of the existing international power link to an upstream point, bearing the ominous name of the "Devil's Hole," clears the way for imminent construction of the new Lewiston generating plant by work forces of the Power Authority of the State of New York.

Nylon Rope

Key figures in the delicate operation were Pilot Kenneth Wallingford, working under the supervision of Chief Pilot James McKay, and Jerry Hankinson, who acted as observer. After a few passes over the gorge to test wind currents, the helicopter picked up the 3,200-lb. test nylon rope from two Ontario Hydro line construction men, Jack Wood and Steven Laginski, perched atop the 180-foot high transmission tower on the Ontario shore. Cautiously "inching" across the gorge in sidewards fashion, the Commission aircraft successfully completed the job within five minutes' time. The spanning operation continued as the nylon rope pulled a light, high-strength steel line across the gorge. This line preceded a 5/8-inch steel "pulling" cable, which, in turn, strung the 1,200 mcm. ACSR conductors between the



ARROWS PINPOINT the location of towers on both sides of the river, which formerly carried the interconnecting conductors. In the foreground work on the new Lewiston generating station is in progress. This necessitated relocation of the lines running from Hydro's Sir Adam Beck plants (background).



TWO HYDRO LINEMEN, D. J. Gibson (left) and Foreman Everett Manion join the rope and a steel pulling cable under the scrutiny of R. G. Gunsinger, Area Superintendent.

two towers — a distance of some 2,400 feet.

Two Lines

The new international connection consists of two, double-circuit 230,000-volt transmission lines. The two circuits of one line, which replaced an old "crossing" completed several years ago, will operate initially at 69,000 volts. Ultimately all four circuits will operate at 230,000 volts.

This is one of two links between the Ontario Hydro-Niagara Mohawk systems, the other tie-line spanning the St. Lawrence River at Cedar Point near Cornwall, Ont.

The paramount importance of such interconnections in reinforcing system security for both power agencies has been demonstrated on frequent occasions. Since partial destruction of Niagara Mohawk's Schoellkopf plant at Niagara Falls, N.Y., in 1956, for example, the Commission has increased its supply of power to the U.S. utility.

Similar ties with the Detroit Edison Company at Detroit-Windsor and Sarnia-St. Marys (Michigan) have provided significant advantages and benefits to both the Commission and the Michigan systems. ■

E. V. BUCHANAN RECEIVES DEGREE

In recognition of his "many contributions to society" the University of Western Ontario, London, conferred a Doctor of Laws (honoris causa) degree on a distinguished pioneer utility engineer — E. V. Buchanan — at its convocation exercises this year.

Mr. Buchanan, who was born in Scotland, came to Canada in 1910 and joined the staff of the "infant" Ontario Hydro Commission. Later that same year he moved to London, Ont., as the city's electric and water works engineer. Five years later he was appointed General Manager of London P.U.C., a position he held until he retired in 1952. For many years, he was the friend and confidant of Sir Adam Beck, first Ontario Hydro Chairman and a former Mayor of London.

Dr. G. E. Hall, University President, in presenting Mr. Buchanan to the Pro-Chancellor, pointed out that he is Chairman of the university's Advisory Committee on Engineering Science, and was "graduating" with its first class of engineers — the class of '58.

Mr. Buchanan, Dr. Hall said, is "a man who justifies the contention that passive concurrence is a denial of responsibility. He has recognized that a major change affecting the welfare of any group of people cannot, or should not, be achieved without an intellectually honest opposition."

Such genuine characteristics have placed Mr. Buchanan high in the esteem of his associates, Dr. Hall said, and together with his soundness of judgment, his thorough effectiveness and candid honesty have won for him the admiration of everyone he has served.

"One so professionally active in the field of public utilities could not but be equally active in the many relevant engineering societies, research organizations and community affairs, Dr. Hall added. "His has been a full experience. His life has been devoted to public service. We pay tribute to him for his many contributions to our society." ■

SOME 5,000 people attended this year's University of Western Ontario convocation exercises. Here Mr. Buchanan (centre) receives the honorary Doctor of Laws degree from Dr. H. E. Jenkin, the university's Pro-Chancellor (right).



THE FAMILY'S GROWING

THREE MORE WI



GUESTS AND OFFICIALS of Amherstburg P.U.C. line the marble patio at the main entrance to the new utility building during the official opening ceremony. Mayor Harvey E. Hamilton (at the microphone) congratulates the utility on its expansion.



TOURING the building, R. M. Laurie, Manager of Ontario Hydro's Western Region (left), guest speaker, comments on the attractive main office. With him (from left) are: Manager Fred Bridle, Commissioner William Nattress, Mayor Hamilton and Chairman W. E. Nye.

PROBABLY nothing testifies to progress more eloquently than a new building. Strong foundations, carefully-laid bricks, newly-glazed windows and spacious interiors all add up to an expression of success and confidence of further expansion.

Progress in the Hydro "family" was manifested in this manner on three occasions during June this year. Within eight days, the Amherstburg Public Utilities Commission, the Township of Sandwich West Hydro System and the Weston Public Utilities Commission each officially opened a new building.

As new headquarters of the local commission, the Amherstburg building incorporates office and service facilities for both electric and water supply. It has 4,200 square feet of floor space for the offices, garage and storeroom; in addition, there is a large yard area, enclosed by a high, wire fence.

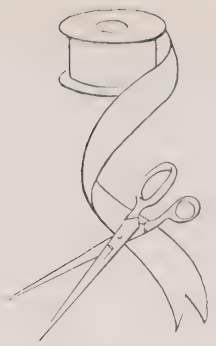
Perhaps the most notable feature of the steel and concrete-block structure is the fact that it was designed and construction supervised personally by the utility's manager, Fred Bridle. While strong emphasis was placed on the utilitarian in the planning stage, the structure also reflects pleasing contemporary architecture.

The general office located near the entrance commands a view of Sandwich Street through a huge glass wall. A marble patio, flower bed and neat stretch of lawn further enhance the exterior appearance of the new civic structure.

The floor of the general office is terrazzo, while there is asphalt tile throughout the halls, executive offices, and billing and meter rooms. The combined boardroom and manager's office is finished in Gold Coast cherry plywood-panelling, with walnut furniture and lime-green leather trimming.

ESSES

Ontario utilities officially inaugurate new buildings







LOADING PLATFORM of Weston P.U.C. garage and service centre (upper photograph) served as a temporary dais during the formal opening of the new building. Ontario Hydro's First Vice-Chairman, W. Ross Strike, was the speaker (right).

When the drapes are drawn for evening commission meetings, the ceiling is completely illuminated by fluorescent lamps positioned behind translucent plastic.

Prior to the construction of the new headquarters, the commission rented office and storage space in the old town hall, and had other facilities scattered throughout Amherstburg.

Predicts Better Service

Mr. Bridle believes the improved working conditions will result in even better service for his commission's steadily growing customer rostrum. Domestic customers served by the Amherstburg P.U.C. have increased by about 20 per cent in the past five years: in 1952, the figure was 974; in 1957, it had risen to 1,140. Even more noteworthy is the consumption of electricity by these customers: the average of 500 kilowatt-hours a customer a month constitutes one of the highest consumption figures in Ontario.

Regional Manager Officiates

Guest speaker at the opening of the Amherstburg building was R. M. Laurie, Manager of Ontario Hydro's Western Region. He joined Chairman William E. Nye of the local commission, in the traditional ribbon-cutting ceremony. Other guests included William Murdoch, M.P.P. (Essex South) and E. A. Washburn, Immediate Past President of the A.M.E.U.

Mr. Laurie also took part in the ribbon-cutting ceremony at the official opening, next day, of the new office and service centre of the Sandwich West Hydro-Electric System. On this occasion, he was joined by G. M. McHenry, Consumer Service Engineer, Western Region. About 100 people watched the ceremony and, later, several hundred more attended an "open house."

Located on Huron Line, about three miles south of the Ambassador Bridge, the Sandwich West building is a handsome but functional structure. Maroon, porcelain panels set into an aluminum curtain wall highlight the long front of the buff brick and concrete block building. Floodlights embedded in a large lawn

(Continued on page 30)





OBVIOUSLY PROUD of the new office and service centre completed by Sandwich West Hydro System (upper), Manager David Pope stands at the public service counter.

dramatize its striking appearance at night.

Inside, the building is similarly impressive. Some 10,000 square feet of floor space accommodate well-lighted offices, a boardroom, two meter shops, a garage, a warehouse, showers and locker room, and two lunchrooms. Both lunchrooms are equipped with refrigerators and cooking facilities for the staff of 23; natural light enters the boardroom and the main corridor through sky domes.

Hydro "Youngster"

The Township of Sandwich West Hydro System is one of the "youngsters" in the Hydro "family." It was formed on March 1, 1956, when the Township of Sandwich West purchased the electrical distribution system within its boundaries from Ontario Hydro. From an initial figure of about 6,410 kilowatts, the system has built up to a peak demand of more than 8,800 kilowatts — a remarkable increase in such a short space of time.

Manager David Pope is confident of more progress. Standing in the big enclosed yard at the rear of the new building, he points out that there is ample room for further expansion on adjacent property also owned by the utility.

In contrast to the Sandwich West System, the Weston Public Utilities Commission is one of the oldest members of the Hydro "family." The venerable utility signed a Hydro contract in 1911.

Growth since then has been enormous, and, as the recent opening of a new service centre demonstrated, expansion is continuing.

Average Cost

Probably the most outstanding feature of the Weston Commission's progress is the fact that average cost of power per kilowatt-hour to domestic customers is now (at 1.1 cents) one-quarter of the original cost. This probably accounts for the fact that average monthly consumption, in 1957, stood at 507 kilowatt-hours compared with 17 kilowatt-hours in 1914. During the same period, the number of domestic customers increased to 2,724 from 352.

Situated on Wilby Crescent, the new service building provides facilities for all utility services in the Town of Weston. It replaced several temporary buildings previously occupied

(Continued on page 31)

THREE MORE WITNESSES

(Continued from page 30)

by the local commission, Parks Department and Works Department. The administrative offices of the Weston P.U.C. are located in the town's municipal building.

Space is a big feature of the new service building. The modern, two-story structure has 15,000 square feet of floor space and is surrounded by large yard areas. Other features include fine eating and locker facilities for the staff and a splendid view of the Humber River Valley. As one of the guests commented after the building was officially opened by W. Ross Strike, First Vice-Chairman of Ontario Hydro: "I'd enjoy working here for the view alone."

— by E. B. Bolwell.

FRIENDLY INVASION

(Continued from page 13)

the construction of a cable with special strength characteristics.

Design and material for such a cable were agreed upon at a meeting of representatives of the Commission, the Canadian Standards Association, and three leading cable manufacturers. This conference decided that the most suitable design would be a six-conductor cable — rubber-insulated (instead of the more general paper), lead-covered, steel-wire armored, and with an overall covering of jute. Three conductors are No. 1/0 stranded copper; the other three are No. 4 stranded copper neutrals.

The cable design was recommended to the Island of Bob-Lo Company, and the company called for tenders. Meanwhile, the Commission arranged for a survey of the cable-laying area, and helped to draw up specific plans for the operation. Then followed preparation of the electrical distribution system on the island, and installation of such facilities as terminal poles on the island and the mainland.

Finally, the big day came. Lifted aboard the cable-carrier barge by a derrick, a reel-mounting was welded to the deck.

"Straight-line" Operation

Then began the most difficult part . . . Nudged delicately by a tug and powerful motor launch, so that the river's current would not interfere with a "straight-line" laying, the barge moved slowly across the 1476-foot stretch of river starting from the mainland, with the cable paying out behind it. The reel brake was manipulated carefully to ensure that the 1,840-foot long cable did not develop wasteful slack, yet, at the same time, did not become dangerously taut, either.

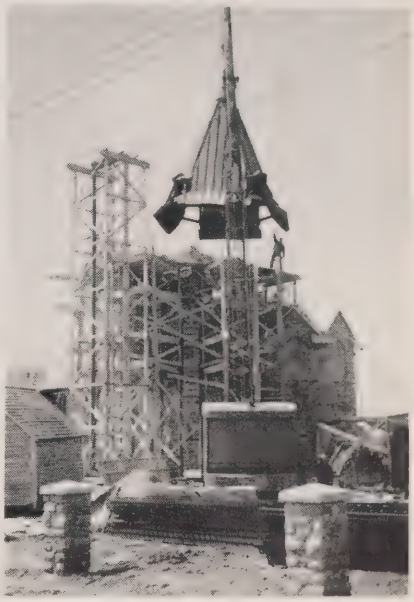
The negotiable depth of the river ended about 50 feet off the island's shore, near the second terminal bowl Getting the cable the extra distance was "tricky." The first move was to get the heavy reel and its mounting out of the way (by using a derrick again), and to "flake" out the remaining cable on the deck of the barge. Then the end of the cable was taken ashore and hooked to a tractor. With the barge-crew helping to control the pay-out from the deck, the cable snaked through the water and along the deep trench to its island terminal.

After a diver ascertained that the cable was lying on the bed of the river in a practically straight line, the conductors were connected to terminals on the potheads. Tests of the electrical supply followed. Then, a few days later Bob-Lo Island began its career as a Hydro customer.

Popular Park

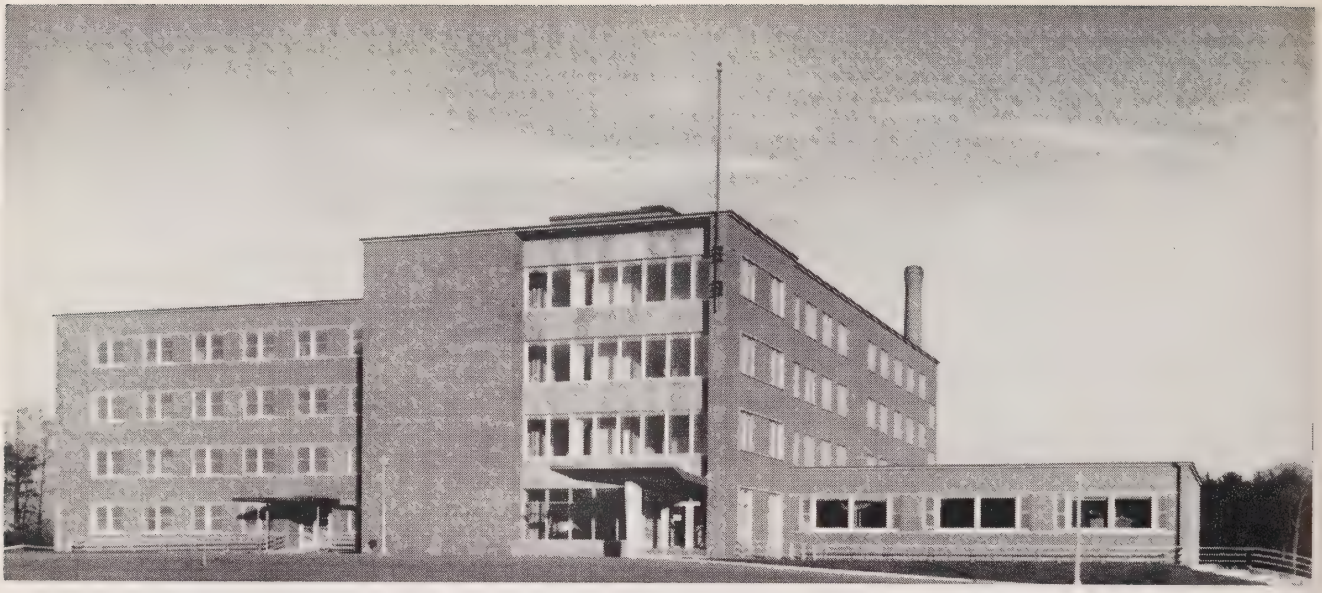
The famous amusement park operates for 100 days each year, drawing a total of about half a million visitors, transported by steamers from both Detroit, Mich., and Amherstburg, Ont. In addition to the rides, the centre contains 26 large picnic areas, each with its own baseball diamond. Altogether, there are 3,500 picnic benches and tables.

Although operated by a Detroit company, the enterprise buys all its food provisions from Canada and employs a Canadian staff (numbering more than 200 at peak of season). Aided by Hydro service, Bob-Lo seems certain to expand its facilities bringing more business and employment to the area. Indeed, the "island with a past" is now an "island with a future." ■



OLD STEEPLE FOR NEW CHURCH

The familiar steeple of Trinity Anglican Church is being placed on top of the new structure built as part of Ontario Hydro's St. Lawrence rehabilitation program, to replace the old church, Formerly located on old No. 2 Highway in Williamsburg Township, east of Morrisburg, the church is now one mile north of there, in the community of Riverside on new No. 2 Highway. Plans called for the use of all the original stone and fixtures of Trinity Church, but the age of the building forced Ontario Hydro to use 95 per cent new material. Parishioners now have an old place of worship within new walls, because the familiar steeple has been retained and the church's design is identical with the design of the century-old structure. The church is also known as Whitney-Memorial, after builder Canfield Whitney.



NEW South Peel Hospital is situated on spacious grounds on Upper Middle Road in Cooksville, Ontario. Total cost of construction and equipment was $2,150,000. (Photo by courtesy of the "Port Credit Weekly".)

UTILITY STAFF AIDS NEW HOSPITAL



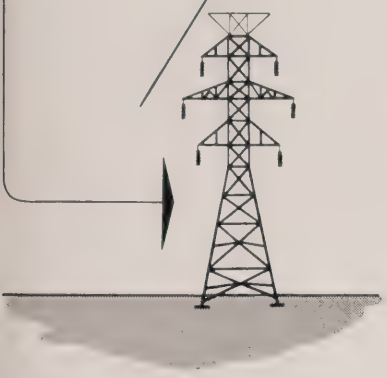
FIRST of 26 cheques from employees of Toronto Township Hydro-Electric Commission is presented to Ray Copeland, hospital administrator (right), by Chairman G. D. Pattinson as Manager R. H. Starr looks on. Door plaque acknowledges employee contributions toward furnishings.

When the new South Peel Hospital was opened at Cooksville recently, the employees of the Township of Toronto Hydro-Electric Commission had a special interest: they are helping to furnish a four-bed ward in the new building.

The local utility staff is donating about $600 or more, through fortnightly deductions from their wages over a period of 26 weeks, while the employees of the Township of Toronto are contributing the remainder of the $2,000 cost of equipping the ward.

Constructed and equipped at a total cost of $2,150,000, the 120-bed, five-story hospital received support from many organizations and individuals. "The employees of the Toronto Township Hydro-Electric Commission are proud to be among the supporters of such a fine institution," says R. H. Starr, commission manager.

ALONG HYDRO LINES



Present Awards to Linemen

John MacLellan, Ontario Hydro's Director of Accident Prevention, recently presented National Safety Council life-saving awards to two Ontario Hydro linemen who revived a contractor's employee knocked unconscious by electrical shock last year. The two men, Hugh McDonald, of Kitchener-Waterloo, and William J. Ashton, of Shakespeare, saved the life of Martin Klein, Toronto, who was injured and severely burned when the boom of a derrick came into contact with a pole.

Customer Increase Reflects City's Growth

Ottawa Hydro Commission's figures on power purchases and sales graphically depict Ottawa's growth during 1957. By the end of December last year, the utility was serving a total of 76,353 customers in Ottawa, Eastview and Rockcliffe, an increase of 2,886 over 1956. The number of customers moving during 1957 was 20,362, or 26.66 per cent of the total customers in December last year.

BURLINGTON AND STRATFORD NAME NEW MANAGERS



E. A. WASHBURN



D. M. SEATH

Edward A. Washburn, General Manager and Secretary-Treasurer of Stratford P.U.C. for the past four years, has been named Manager of Burlington P.U.C. Mr. Washburn succeeds R. M. McKenzie, a former Manager of Ontario Hydro's West Central Region, who will continue to serve as Chief Engineer of the Burlington utility. Mr. Washburn will be succeeded by Douglas M. Seath who has been Manager of Ingersoll P.U.C. for the past eight years.

Mr. Washburn, born at Comber, Ont., near Windsor, spent five years after graduation from high school touring as a musician. He then attended Assumption College, Windsor, for a year before entering Queen's University, Kingston, from which he graduated in 1943 with a Bachelor of Science degree in electrical engineering. He joined the Royal Canadian Naval Volunteer Reserve in the same year, serving until the end of World War II.

In 1947, upon completion of one year's service with Ontario Hydro, he was appointed Manager of Ingersoll P.U.C., where he remained until going to Stratford. A member of the Association of Professional Engineers of Ontario, Mr. Washburn is also a former director and president of the A.M.E.U.

Mr. Seath, the new Manager of Stratford P.U.C., is a graduate of Southeast Essex Technical College at Dagenham, England, and the University of Toronto. A veteran of the R.C.A.F., he was electrical engineer with St. Catharines P.U.C. after his graduation in 1949 until September, 1950, when he was appointed to the Ingersoll post. A member of the Association of Professional Engineers of Ontario, Mr. Seath has taken an active interest in A.M.E.U. affairs. He is, at present, an A.M.E.U. Director, representing the Western Region His resignation at Ingersoll took effect July 18, this year.

Richmond Hill Instals New Street Lighting

A new type of mercury-vapor lighting will be installed along Yonge Street in Richmond Hill, Ont. Richmond Hill Hydro-Electric Commission recently agreed to replace the present streetlighting system at an estimated cost of $10,000.

Hensall Constructs New Utility Building

Construction of a $9,000 utility building has started at Hensall. The new concrete-block 70 x 20-foot building, being built adjacent to the present Hensall P.U.C. quarters, will house a showroom, warehouse, garage and offices.

Brantford Drops Second Notice

Brantford P.U.C. has announced that it will eliminate its second notice on overdue electric and water bills. Henceforth the utility will send out only the regular bill and one notice indicating that service will be discontinued if payment is not received within 10 days. However, customers will be eligible for a prompt payment discount for a period of 15 days after the billing date, compared with 10 days previously.

The new policy was established when commissioners were advised that customers were ignoring the second notice. The utility has also raised its charge for disconnecting and reconnecting services from one to three dollars to spur prompt payments.

Rainy River Joins Hydro Family

Another Ontario municipality — Rainy River — joined the Hydro circle recently after a half-century of municipally generated power.

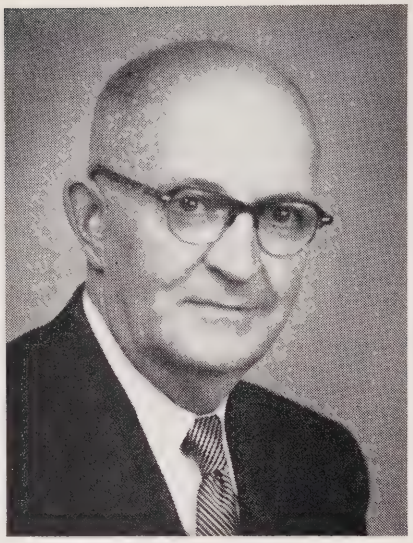
The local power plant, enlarged and modernized over the years as demands required, was first placed in operation in 1908. Established by W. H. H. Green, the station was sold to the Town of Rainy River in 1918.

Steam turbo-generators were used to supply power for the first 20 years. A switchover from steam to diesel generation was made in 1929. The power plant will be shut down by Ontario Hydro in the near future, and the three diesel units, including two original ones, will be offered for sale. A gasoline engine has been purchased as a standby unit for water supply. The Commission will supply power from its Northwestern Division network.

NAMED PRESIDENT

Manager of the sales division of Chatham Hydro-Electric Commission, Gordon Sharpe, has been elected President of the Chatham Ad and Sales Club.

SECRETARY-TREASURER RETIRES



S. H. GILLETT

S. H. GILLETT, Secretary-Treasurer of Windsor Utilities Commission for 17 years, recently retired and has been succeeded by John F. Cook, formerly Office Manager of the Windsor Commission.

Mr. Gillett spent seven years in the Traffic Department of Canadian Pacific Railways. In 1919 he became associated with Walkerville Water Company Limited, which later became part of the Windsor Utilities Commission.

He was appointed Secretary-Treasurer of Windsor Utilities Commission in June, 1941, and held this position until his recent retirement. During his 39 years of service with the Windsor utility, Mr. Gillett took an active role in community affairs, and served as Treasurer of Windsor's Community Fund in 1955 and 1956.

Mr. Cook, who succeeds Mr. Gillett as Secretary-Treasurer, was born and educated at Bradford, Ontario. After high school graduation he joined the Standard Bank, which later merged with the Canadian Bank of Commerce. He served in various branches of the bank in Ontario, and, in November, 1927, was transferred to Windsor.

In December, 1931, he joined the staff of the Windsor Hydro-Electric Commission as an accountant. When this commission merged in 1935 with the utilities of five other municipalities, which united to form the City of Windsor, Mr. Cook was appointed Credit Manager of the newly-created Windsor Utilities Commission. In December, 1955, he was appointed Office Manager of both the water and Hydro divisions of the Windsor Commission and served in that capacity until his appointment as Mr. Gillett's successor.

Mr. Cook served as Secretary and as Chairman of the A.M.E.U. Western Ontario Accounting and Office Administration Committee between 1932 and 1955. Interested in civic affairs, he has been a Director of the Windsor



J. F. COOK

Rotary Club as well as Treasurer for four years. He has also served as Treasurer of the annual Windsor Easter Seal Campaign, on behalf of the Rotary Club's crippled children's work, since these campaigns were initiated several years ago.

Elected President

Jack Thompson, Manager, Administration Buildings, Ontario Hydro, has been elected President of the Ontario Chapter of the American Society of Heating and Air Conditioning Engineers.

A TORRENT IS TAMED

(Continued from page 6)

in the Cornwall area. It signalled the beginning of a four-day celebration in the City of Cornwall and other St. Lawrence Valley communities.

In Cornwall, the centre of festivities, a special citizens' committee, appointed by the city, organized and gained wide publicity for the inundation celebrations. Officials of the United Counties of Stormont, Dundas, and Glengarry joined in to make the holiday one of the merriest the district had ever witnessed.

Newspapers published special editions; souvenirs of all kinds, ranging from silver spoons to wooden nickels, were offered to visitors; a special souvenir program listing events for the period was printed, and a western-style ballad entitled "Forty Miles of Cool Water" was written and recorded for the occasion.

Parades with floats and military bands filled the streets; a fishing derby continued for four days; dances, sporting events and official receptions and ceremonies were almost continuous.

July 2 was Ontario Day, with Lieutenant-Governor Keiller MacKay of Ontario as the guest of honor. On July 3, City of Cornwall and United Counties Day, Prime Minister Frost returned to the district where, among other events, he participated in the dedication of new Union Cemetery, between Long Sault and Ingleside two new St. Lawrence communities established by Ontario Hydro. The dedication followed formal presentation of the deed by Mr. Duncan. Ontario's Premier also officiated at the formal inauguration of Ingleside's spanking new shopping centre built by the Commission.

By July 4, International Day, the power pool had reached 236 feet above sea level, and shipping, halted four days because of the flooding, began to move through the new locks and the Wiley-Dondero channel of the U.S. section of the seaway.

Throughout the official ceremonies and celebrations the theme of co-operation and friendship between Canada and the United States predominated.

This feeling of comradeship between two nations was summed up by Mr. Duncan when he spoke to the luncheon group of guests and newspapermen.

" . . . the triumphant aspect of this project is not so much in the physical things which we saw today, but in the fact that with many reasons for differences . . . we have reached the final stage of this project with never a serious difference between us.

"What better answer could this be to the men of little faith on both sides of our border who speak so glibly of the things that divide us? How insignificant are those compared with the things that unite us."

Mr. Duncan announced that a granite marker will be erected on the tailrace deck at the international boundary when the power development is completed. An inscription upon it will read:

"Let this stone bear testimony to the common purpose of two nations whose frontiers are the frontiers of friendship, whose ways are the ways of freedom, and whose works are the works of peace."

— by Peter Maitland.

NIAGARA IN A NEW LIGHT

(Continued from page 25)

horizontal or vertical positions in conjunction with diffused circular beams.

Four horizontal beams on each of the left and right sides of the spray illuminate the Canadian or Horseshoe Falls, while two vertical beams emphasize the height of the spray above the bottom of the gorge. Hitherto unlit, the turbulent rapids above this cataract are spotlighted by three concentrated circular beams. By illuminating the rock face of Goat Island, the American and Bridal Veil Falls are linked with the larger cataract. Four horizontal bands of light — stretching from side to side and covering the complete 167-foot depth — are directed to the American Falls while the Bridal Veil shimmers in the path of a single circular beam.

Like their modest predecessors, the new 4,200,000,000-candlepower bank of lights will participate in this spectacle every evening 365 days a year.

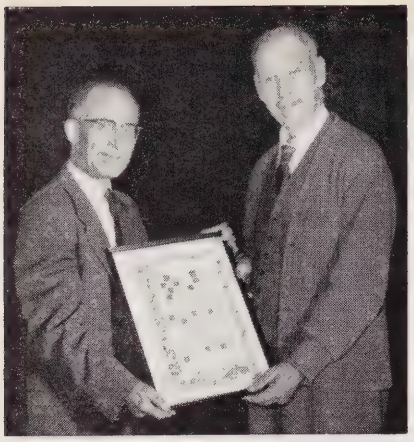
— by B. L. Graham

CALENDAR OF EVENTS

(Revised as of July 2, 1958)

Officers of the O.M.E.A. and A.M.E.U. have issued the following schedule of events for the next few months:

Sept. 2 & 3	Georgian Bay O.M.E.A. — Delawanna Inn — Honey Harbor;
Sept. 3 & 4	E.O.M.E.A., Brockville;
Sept. 5	Opening of the R. H. Saunders — St. Lawrence G.S.;
Sept. 16 & 17	Thunder Bay Municipal Electric Association — Kenora;
Sept. 24	O.M.E.A. Dist. No. 6 — Palmerston;
Sept. 25 & 26	A.M.E.U. Western Accounting and Office Administration Conference, Niagara Falls;
Early October	A.M.E.U. Regional Workshop (Travelling Circus) North Bay;
Late October	A.M.E.U. Regional Workshop (Travelling Circus) Chatham;
Nov. 10 & 11	A.M.E.U. Institute of Electric Space Heating — Toronto;
Late November	A.M.E.U. Regional Workshop (Travelling Circus) Toronto;
1959	
March 15, 16, 17, 18	O.M.E.A. — A.M.E.U. 50th Annual Meeting, Toronto.



BEACHVILLE VETERAN Edward Hacker, right, was honored recently for his 33 years' service with the Beachville Hydro-Electric System, as a member of the Board of Police Trustees. He was presented with a long-service certificate by C. W. Hayball, Chairman of Woodstock P.U.C., left, on behalf of O.M.E.A. President Bert Merson, Toronto, who was unable to be present. Mr. Hacker served as a Beachville trustee from January 1, 1915 to December 31, 1947, and was chairman of the board during that time.

Brantford P.U.C. First In Safety Awards

Top place for traffic safety in small Canadian cities has been won by Brantford P.U.C., which operates the city's transportation system. Regina placed second in that category.

The greater Winnipeg Transit Commission placed first for cities with more than 200,000 and the Toronto Transit Commission placed second. Judging was done by the Canadian Transit Association. The awards were made on the basis of 1957 traffic accident rates of each utility compared with its own average rate for the past two years.

Prescott Reduces Domestic Rates

Hydro bills for customers of Prescott P.U.C. were reduced by 15 per cent commencing June 1 this year.

This is the second domestic rate reduction in less than two years instituted by the utility which applied to Ontario Hydro for the new schedule when it was indicated the surplus in the Hydro account was increasing. The new rates will mean an annual reduction of approximately $15,000 in the local commission revenues.

Hydro Superintendent "Quick on the Trigger"

Hydro Superintendent Lorne MacVicar, St. Thomas P.U.C., happened to be in the right place at the right time recently when an explosion burned out a main feeder line supplying a large section of the city. Using the two-way radio in his car, he called for repair crews at once. Service to all but a small section of the "blacked-out" area was restored within four minutes after crews arrived on the scene.

Robert Butter Heads A.M.E.U. Regional Group

At a recent organization meeting in Midland, Robert Butter, General Manager of Owen Sound P.U.C., was elected President of the Georgian Bay Region, A.M.E.U. Other officers of the new regional group are: W. G. Lane, Collingwood, Vice-President, and R. K. Pile, Ontario Hydro, Barrie, Secretary-Treasurer. Directors are: S. R. Walkinshaw, Orillia; R. B. Lackey, Orangeville; E. D. Elwes, Paisley, and K. H. Baird, Hanover.

SPACE-HEATING PROGRAM

(Continued from page 21)

present rates could be maintained only through increased consumption.

"We must retain our present water heating and cooking load and procure a proper share of new load," Mr. Harmer said. "Restrictions must be removed and sales effort, to some degree, at least, must be introduced."

Ontario Hydro did not propose, at this time, to embark on a program of active promotion of house-heating, the speaker added. But it was essential that, having established suitable rates and the conditions under which they would apply, the Hydro "family" prepare itself for the problems that were bound to arise.

Continuing, he pointed out that the Commission was preparing technical information on the proper application of electrical heating – including methods of calculating heat losses, the required capacity of the heating system, and cost data – and this information would be made available through the Commission's Regional organization, Mr. Harmer said.

Important Change

Another speaker at the meeting – H. J. Foy, Manager of the Electric Service League of Ontario – described the elimination of the restrictive service charge on electrical space-heating as the "most recent and important development" in the campaign to meet competition from natural gas.

He also said that it was another development emphasizing the conclusion that a 100-ampere electrical service was the minimum installation for a newly-constructed, modern house.

The third speaker at the A.M.E.U. meeting was Roy Beith, Manager of the Electrical Utilities Safety Association. He reported on developments in safety programs and stated that management leadership was "a cardinal point" in their success.

The after-dinner speaker was G. D. Floyd, engineering consultant to Ontario Hydro. He outlined planning and construction work being carried out by the Commission. While there was still a very high level of activity in capital construction the Commission was now "catching up" on its backlog of betterment projects postponed in the past because of more urgent commitments. –

by E. B. Bolwell.

ANOTHER DEBUTANTE

(Continued from page 15)

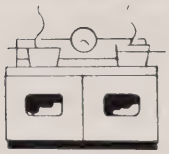
assembly room, and staff lunch room are located in the basement, of the new regional building, while a conference room is situated on the second floor.

In the words of Mr. Gurnett during the opening ceremony, the staff of East Central Region, with ample space for reasonable expansion in the future, "have been rededicated in serving our customers". ■



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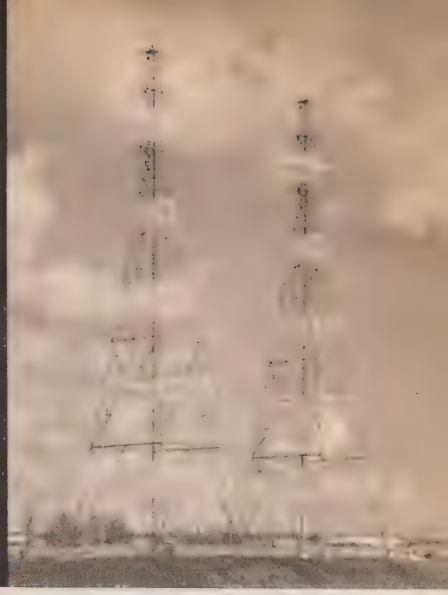
(Sample advertisement—mats available to the associated municipal utilities for use in local "Live Better Electrically" Campaigns.)



BEFORE AND AFTER

JUST after the first sod was turned to inaugurate construction of the St. Lawrence Power Project, the photograph above was published in Ontario Hydro News (July-August, 1954, page 18). It showed, among other things, the Long Sault Rapids (white water, upper background); Barnhart Island (middle forground); the site of the adjoining powerhouses in the river's north channel between the lower tip of Barnhart Island and the Canadian mainland (lower foreground) and the Cornwall Canal (right foreground). Some four years and 3.2 million cubic yards of concrete later, the adjoining powerhouses of Ontario Hydro (right) and the Power Authority of the State of New York have become a reality as illustrated in the larger photograph. These powerhouses span the now-widened north channel for a distance of 3,300 feet, while a new lake, some 100 square miles in extent, has been created as the headpond for the development. Barnhart Island (left), diminished in size, is now the site of the Power Authority's switchyard, while the Cornwall Canal and several islands upstream have completely disappeared. This photograph, which also depicts the Long Sault Dam (upper left), was taken shortly after the first generator started commercial operation in the Commission's Robert H. Saunders - St. Lawrence Generating Station.







ONTARIO HYDRO NEWS

SEPTEMBER, 1958



ST. LAWRENCE POWER PROJECT OPENING



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COVER "SHOTS"

Saluting the official opening of the St. Lawrence Power Project, we have selected several photographs, depicting various phases of the development, to illustrate both covers of this issue.

. . . TO NEW HORIZONS

In the succeeding pages of this issue we salute the St. Lawrence Power Project and chronicle the official opening ceremonies held on September 5 this year.

The fact that this climactic event took place at the point where the powerhouses of Ontario Hydro and the Power Authority of the State of New York adjoin along the boundary line between Canada and the United States has underlined the international character of this development. It has, moreover, re-affirmed the common purposes of the two nations, as well as their close ties of friendship and their steadfast determination and ability to follow the path of peaceful progress.

Living as we do today in an atmosphere of international tension, it is both heartwarming and re-assuring to find representative power agencies of two nations amicably sharing the waters of one river for the production of electric energy. This marks the first instance in the history of North America, in fact, that a Canadian province and a state of our friendly southern neighbor have joined hands across the international boundary to create a hydro-electric project for the benefit of the people of both nations.

The partner Seaway development is yet another strand in the strong fabric that binds the destinies of Canada and the United States. Worthy of mention, however, is the recollection that the original concept of the St. Lawrence Seaway was forged when the two nations were at war. Transportation difficulties encountered during the War of 1812-14 led to consideration of plans for a canal in the vicinity of Montreal to bypass the Lachine Rapids. And thus was born the forerunner of the new and splendid Seaway system. Upon completion next year, it will open a waterway, 1,200 miles long, into the heart of this continent for the ocean-going vessels of the world.

One needs to look no farther than the powerhouses for another striking manifestation of the common aims and ideals of Canadian and United States citizens. For they bear the names of two men whose vigorous leadership and ardent espousal were factors of importance in the final negotiations that preceded actual construction operations. Fortunately Robert Moses, Chairman of the Power Authority of the State of New York, whose name has been given to the United States powerhouse, was present at the ceremony to witness the achievement of his objective. The man whose name is appropriately perpetuated in the designation of the Ontario Hydro generating station – Robert H. Saunders, C.B.E., Q.C., Commission Chairman from 1948 to 1955 – died a few months after he participated in the turning of the first sod for the stations.

While it is more than fitting that the efforts of Mr. Moses and the late Mr. Saunders should have been recognized in this way, there is general agreement that the power project and the St. Lawrence Seaway development are the products of the idealism and the skills of countless Canadians and Americans. Nevertheless it has been gratifying in recent weeks to note the generous tributes from many sections of the United States press to the enthusiasm and tenacity displayed by several of our citizens in the events that led up to the final "green light" on June 7, 1954.

Since that day, the engineering and administrative abilities of some 12,000 people, epitomized by such men as Ontario Hydro's Chief Engineer, Dr. Otto Holden, and by the Commission's St. Lawrence Power Project Director, Gordon Mitchell, have been utilized in the exacting and ingenious task of harnessing the great stream.

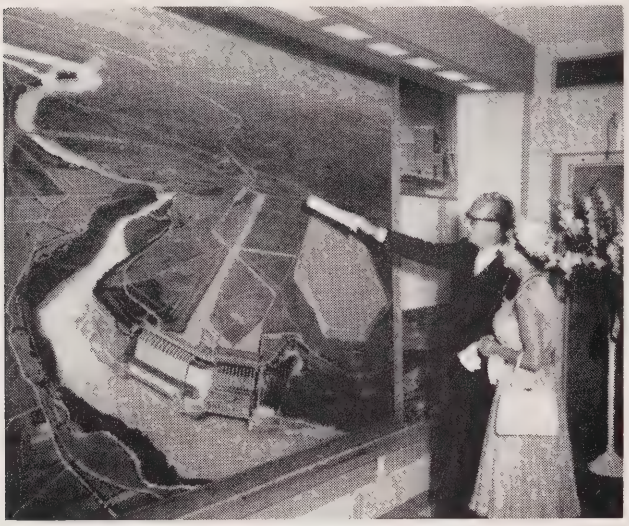
Particularly notable too, has been the fortitude and patience of those St. Lawrence Valley folk who bore the full impact of these developments with their consequent disruptions and distractions. For many Ontario citizens – some 6,500 in fact – it meant giving up their homes and moving to higher ground. Among this group were several who found it necessary to relinquish title to properties which had borne their family name for generations.

Their forbearance and co-operation stand memorialized in the fine new and relocated communities along the north shore of the St. Lawrence. Fortunately, too, under the aegis of the Ontario-St. Lawrence Development Commission, many of the traditions and the nostalgic associations with the valley's early settlement are being preserved. New parks, beaches and recreation areas are being established, and they seem destined to immeasurably enhance both the beauty and the mode of living of this area.

Conveniently located to the new seaway route, and with an ample power supply at their front door, the communities along the St. Lawrence River are keenly aware of the opportunities that now exist for industrial expansion.

Thus these new developments, despite the temporary upheaval they created, have brought many compensations, and today the people of the St. Lawrence Valley look confidently forward to new horizons.

TOURING the Sir Adam Beck-Niagara Generating Station No. 2, Her Royal Highness, The Princess Margaret, escorted by Chairman James S. Duncan, pauses to view a mural of the development.





HER ROYAL HIGHNESS graciously acceded to Mr. Duncan's request that she sign a special guest book to commemorate her visit.

H.R.H. The Princess Margaret inspects Sir Adam Beck - Niagara Generating Station No. 2 during Canadian tour

A Princess Pays

PRINCESS Margaret's tour of Canada is over, but the memory remains. Many probably recall one particular incident more vividly than others. Maybe it was some human interest story of her visit which they enjoyed reading; or perhaps it was a personal experience, like a warm smile from Her Royal Highness as she passed in an open car.

For those who saw the Princess on her visit to Niagara Falls, Ont. on August 1 this year, there will probably be two memorable images. One is of a small, pretty young woman looking elegant and charming in a dainty, soft pink chiffon dress; the other is of a small, pretty young woman still somehow managing to look elegant and charming in floppy, bright yellow oilskins and outsize rubber boots.

Princess Margaret wore the pink dress during her tour of the picturesque Cataract City, including her inspection of Ontario Hydro's Sir Adam Beck-Niagara Generating Station No. 2. But she donned the oilskins and boots when she descended to Table Rock for a closeup view of the famous Horseshoe Falls.

The welcome from citizens in this populous and perhaps best-known section of Canada was warm and spontaneous. It was at this point, too, that her tour took on an international atmosphere as groups of United States citizens from across the Niagara River mingled with their Canadian neighbors to greet the Royal "tourist."

Joint Hosts

Ontario Hydro joined the City of Niagara Falls and the Niagara Parks Commission as Her Royal Highness' official hosts for this occasion. As she and her party arrived by train they were greeted by Mayor Ernest Hawkins, who extended a civic welcome at the Oakes Garden Theatre. Then followed a visit to the Falls accompanied by Hon. Charles Daley, Chairman of the Niagara Parks Commission. At the final stop in her tour itinerary, the youthful Princess was greeted by Ontario Hydro Chairman James S. Duncan before he escorted her on a tour of the Sir Adam



COMPLETING her tour of the plant, the Royal visitor receives a salute from Royal Canadian Mounted Police guards as she leaves the station accompanied by Mr. and Mrs. Duncan and members of the official party.

PRIOR to her Niagara visit, Princess Margaret was the guest of the City of Toronto during which she enjoyed a brief drive with Ontario's Prime Minister Leslie M. Frost as her escort. As the entourage passed the Commission's flag-bedecked Head Office, Ontario Hydro employees extended a warm welcome.



Call

Beck-Niagara Generating Station No. 2. Officially opened by H.R.H. The Duchess of Kent on August 30, 1954, this sprawling hydro-electric development has become one of the "showplaces" of the attraction-filled Niagara area.

Views Mural

After viewing the mural depicting the $350,000,000 installation along one wall of the station's information centre, the official party descended by elevator to the generating floor of the quarter-mile-long powerhouse. Here the Royal visitor received another pleasant surprise as she was accorded a hearty welcome by Hydro staff members. A smile and a wave acknowledged this greeting from the men who had paused from putting the "finishing touches" on the large station.

Moving to a small dais, Her Royal Highness signed a special guest book with a simple "Margaret – August 1." Mr. Duncan then presented other Commission representatives and their wives. W. Ross Strike, First Vice-Chairman, and Mrs. Strike, came first, followed by Lt.-Col. A. A. Kennedy, Commissioner; D. P. Cliff, Commissioner, and Mrs. Cliff; E. B. Easson, Commission Secretary; A. W. Manby, General Manager, and Mrs. Manby; and J. R. McCullough, Niagara Regional Manager, and Mrs. McCullough.

Mrs. Duncan, who had been presented to the Princess in Toronto, the day before, joined the Royal party when Her Royal Highness stepped down from the dais to inspect the generating room. At one stage, showing her interest in the mammoth project, Princess Margaret stopped at a window and looked down on the turbulent tailrace area.

After more applause from the workmen, and a final wave, Her Royal Highness re-entered the elevator and returned to the Information Centre above. Shortly afterwards, she attended a luncheon at the Sheraton-Brock Hotel, where the guests at the head table included Mr. and Mrs. Duncan. Then she boarded the Royal train to continue her tour of Ontario. ■

STREAM OF HISTORY

By E. B. Bolwell

INTREPID FRENCH EXPLORER, Jacques Cartier, and his followers meet the Indians who lived along the river which they first sighted on August 10, 1535 — the Feast Day of St. Lawrence.



EVER since Jacques Cartier discovered it, the St. Lawrence River has been one of the chief tributaries of Canada's stream of history. Indeed, for many years, it was the main source.

It was on the waters of the St. Lawrence that Cartier and other explorers set forth to open up the country. It was on the waters of the St. Lawrence that fur traders, loggers and fishermen developed our first industries. It was on the waters of the St. Lawrence that France and England moved their forces into battle for the riches of this new world. And it was on the waters of the St. Lawrence that peace settled, paving the way for the birth of a new nation.

Cartier, the short, stocky, sailor from St. Malo, discovered the river in 1535. A devout man, Cartier instinctively recognized the date of his discovery — August 10 — as the Feast Day of St. Lawrence; but, ironically, he did not recognize immediately the extent of his find. He mistook the large indentation between the Quebec shoreline and the Gaspe Peninsula for a bay, and he named it "Baye Sainct Laurens." Later, the name was applied to the gulf, then to the river, until today the whole chain of lakes and rivers to the western end of Lake Superior are included in the general term, "The St. Lawrence System."

After his initial reconnaisance, Cartier returned and entered the river proper. He sailed nearly 1,000 miles upstream until his way was barred by the rapids of Lachine. At the site of Montreal (then known as Hochelaga), Cartier heard from the Indians exciting tales of "inland seas" to the west. This was the first occasion that Europeans became aware of the existence of the Great Lakes.

Cartier did not attempt to find the "inland seas." He and his men suffered through a severe winter on the St. Lawrence and sailed back to France in the spring. Their ruler,

(C. W. Jefferys sketches by courtesy of Imperial Oil Limited)

King Francis I, was disappointed they had found no gold or northwest passage to India and his interest in sponsoring further exploration cooled.

Potential Backbone

But other Frenchmen gradually realized the significance of what Cartier had found. They recognized the St. Lawrence as the potential backbone of a New France. In 1603, Samuel de Champlain sailed out to start putting flesh on the bone.

Champlain was well-suited to the task of building a new colony out of a wilderness inhabited with warring Indians. As a former soldier in the French Wars of Religion, he knew how to fight; as a sailor in the service of Spain, he had visited the colonies along the Spanish Main and he knew how to rule; as an expert geographer, he knew how to explore.

The building of New France began in earnest in 1608 when Champlain established a settlement on the heights above the St. Lawrence at Stadacona. He called the settlement Quebec, a name which came to fill almost as many pages of Canadian history as St. Lawrence. After surviving extreme cold, scurvy and a conspiracy against him in the first year, Champlain was ready to explore beyond the river.

He went far. He pushed south until he discovered the lake which now bears his name; he branched along the Ottawa River into the interior; he was the first to explore the Great Lakes; he led the first party to sail across Lake Ontario.

Between these excursions, Champlain developed Quebec into a flourishing town and powerful fortress. He organized the clearing of land, the building of homes and stores, the setting up of fortifications. To make the colony even more attractive to new settlers from France, he tried to channel the fur trade through an emporium of his own.

When an English expedition under Admiral Kirke captured a fleet of supply ships from France, sailed up the St. Lawrence and forced Quebec to surrender in 1629, it was mainly due to the efforts of Champlain that France regained possession of the settlement. He went to France and persuaded Cardinal Richelieu to demand Quebec back as one of the terms in the subsequent peace treaty. Then Champlain returned to the settlement to take charge again before dying there in 1635.



FORMIDABLE BARRIER to navigation since the days of Samuel de Champlain, the Long Sault Rapids for many years symbolized the latent hydro-electric resources of the St. Lawrence River. The rapids and the canal (foreground) have disappeared beneath a new power lake.



SHIPS and boats of Champlain's time.



The Iron Governor

The next great administrator to sail up the St. Lawrence was Count Frontenac, the Iron Governor, who arrived in 1672. He was another colorful figure, described by one historian as "brave, strong, arrogant, dictatorial, capable." One striking example of all these traits was his violation of King Louis XIV's orders to confine his attention to the existing settlement. Frontenac deliberately and methodically threw his support behind plans to extend French power to the west – and history proved his insubordination justified.

(Continued on page 6)



(C. W. Jefferys sketch — Imperial Oil Limited collection)

EXTENDING the colony westward, Count Frontenac, colorful Governor of New France, led an expedition up the St. Lawrence River in 1673 to establish a fur-trading post. Named in his honor, historic Fort Frontenac is now part of the City of Kingston.

The Governor backed such adventurers as La Salle, who went beyond the St. Lawrence to explore the territory south of the Great Lakes and later became the first white man to sail down the Mississippi to the Gulf of Mexico. Frontenac also cultivated the friendship of the Indians by going among them as an ambassador of good will from their "new chief," King Louis. And he jealously guarded all that he claimed for France. When a fleet of English warships under Sir William Phips sailed up the St. Lawrence in 1690 and called upon Frontenac to surrender Quebec, the Iron Governor replied with gunfire and held firm. He was still running the colony when he died eight years later.

The fall of New France began to gather momentum early in the 18th Century. It reached its climax in 1758 when James Wolfe and a powerful force of British troops sailed up the St. Lawrence in a fleet of more than 200 ships. They landed near Quebec and, in the most momentous battle of Canadian history, wrested from France control of the city — and,

FOUR prominent Canadians, Ontario Prime Minister Leslie M. Frost, Rt. Hon. Louis St. Laurent, then Prime Minister of Canada; Hon. Lionel Chevrier and Robert H. Saunders, former Ontario Hydro Chairman (standing) watched as Hon. George H. Challies, Hydro's First Vice-Chairman at the time, affixed his signature to an agreement in 1951 whereby Canada ceded all rights to the power resources of the river's International Rapids Section to Ontario.



in effect, the whole area. The final point of resistance by the French was at Fort Levis, on Chimney Island (see page 26). This fell on August 25, 1760.

Quebec figured in yet another battle during the American Revolution, when Benedict Arnold made an attempt at its capture. But, with French and British fighting side by side, Arnold was beaten off, and there followed the peace upon which the foundations of a new, independent nation could be built.

Trading Vessels

Peace did not mean the end of the St. Lawrence River's role in history. As the warships disappeared, their places were taken by more and more trading vessels. In the 19th Century, a series of canals was constructed to provide access to the Great Lakes for boats of limited draught. Then followed dreams of the day when the river would be negotiable by ocean-going ships and its power would be harnessed for electricity.

Ontario Hydro has played a major part in the realization of these dreams. As far back as 1913, under the Chairmanship of Sir Adam Beck, the Commission began a detailed investigation of St. Lawrence power possibilities. The completion of the study, in 1921, resulted in the first formal statement on the potential of the International Rapids section.

The International Joint Commission was impressed by the statement and recommended the establishment of a joint board of engineers, comprising three members each from Canada and the United States. In 1926, this board issued a report which formed the basis for the St. Lawrence Deep Waterway Treaty, calling for joint development of the river's power and navigation potentials. The treaty was signed by representatives of both Governments in 1932, but it was not ratified by the U.S. Senate.

Another Attempt

Those who realized how much overall benefit the project would bring refused to give in. In 1941, another formal attempt at getting the scheme started was made with the signing of the Great Lakes-St. Lawrence Basin Agreement. This time the U.S. Congress failed to pass the necessary Bill.

On both sides of the border, proponents of the plan became impatient with the delays. Ontario Hydro Chairman Robert H. Saunders, in particular, pointed out the urgent need for St. Lawrence power. Speaking throughout Ontario, and in the United States as well, he urged an immediate start on the project. Both the Ontario and Canadian Governments gave him strong support.

In December, 1951, new official steps were taken towards joint United States-Canadian development of the power resources of the International Section of the river, and, at the same time, Canada indicated that she would go ahead with the seaway on her own, if necessary. In connection with the power development plans, the Canadian and Ontario Governments signed an agreement which, in effect, gave Ontario Hydro the right to work with a United States entity.

Then, in June, 1952, Canada and the United States filed applications with the International Joint Commission for permission to change water levels in the St. Lawrence River for the purpose of developing power; Canada also sought permission to provide deep draught navigation from Montreal to Lake Ontario. The IJC announced approval of the applications the following October.

This signalled the end of frustration. In 1953, the United States Federal Power Commission granted the Power Authority of the State of New York a licence to develop the power project in conjunction with Ontario Hydro. This licence was confirmed by the United States Supreme Court on June 7, 1954 (just

(Continued on page 36)



ANOTHER momentous occasion was the turning of the first sod for the power project on August 10, 1954 with Prime Minister St. Laurent, Hon. Thomas E. Dewey, then Governor of New York State, and Ontario's Prime Minister Frost officiating at the ceremony.

Once a formidable barrier to shipping, the St. Lawrence River's turbulent International Rapids section has been transformed into a vast power pool and navigation channel

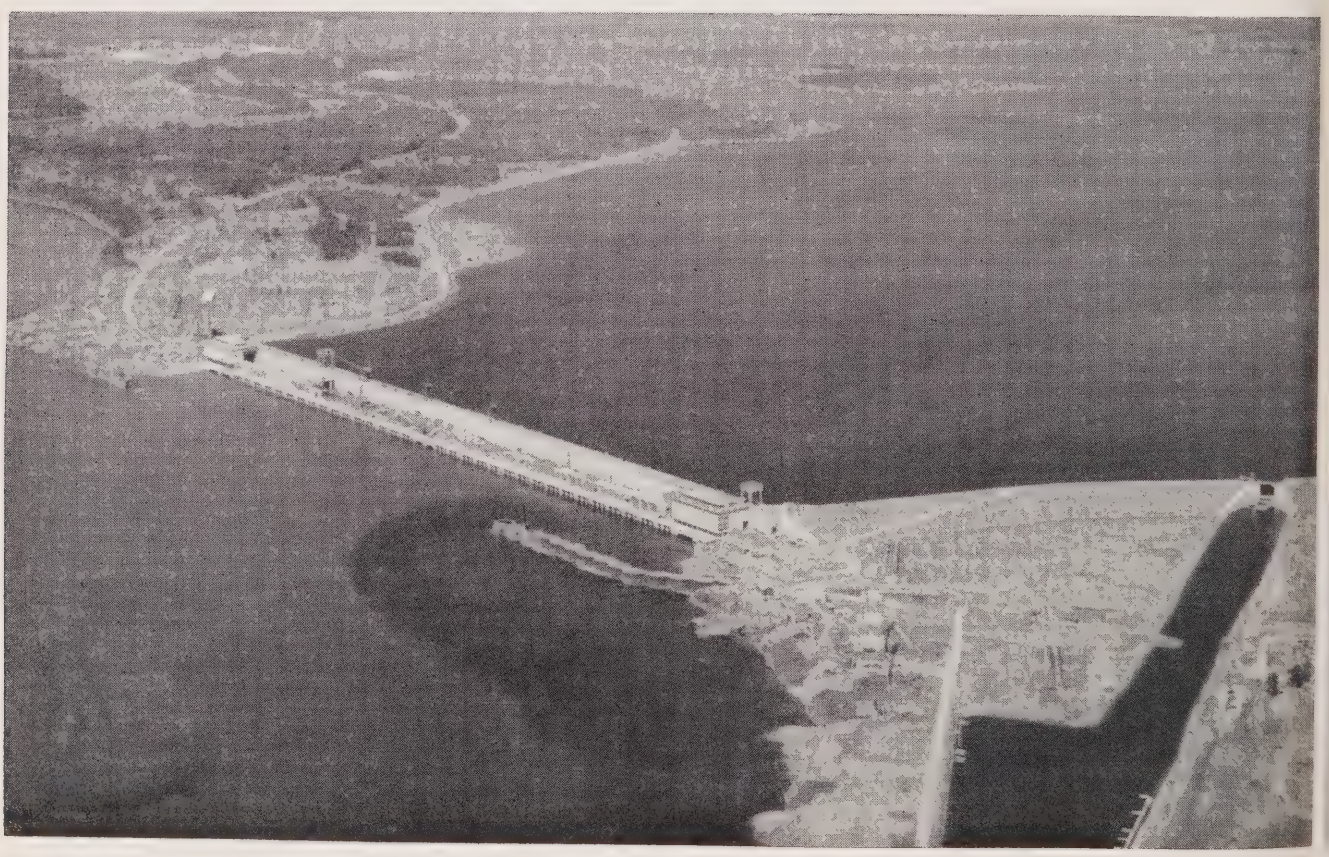


SITE of the powerhouses and Long Sault dam in August, 1954.

by Don Wright

FROM D

SPANNING the St. Lawrence River's north channel, the adjoining powerhouses of Ontario Hydro and the Power Authority of the State of New York are now producing power.





AUGUST, 1955



AUGUST, 1956



AUGUST, 1957

AMS TO REALITY

One of the greatest engineering and construction dramas ever unfolded on an international stage reached a climax, September 5, with the official opening of the St. Lawrence Power Project.

Almost half a century of negotiation preceded the initial action, which has been sustained and absorbing since the curtain was finally raised in the summer of 1954. Hundreds of thousands of people from Canada, the United States and dozens of foreign countries have paused to witness parts of the performance, while countless millions have followed its progress by radio, television and the printed word.

This unparalleled public interest stems in part from the protracted period of preliminary negotiation, and from the drama inherent in the complex rehabilitation program associated with the power project, but the physical aspects of the development were sufficient in themselves to capture the imagination of people everywhere.

Converting the latent power of this broad and historic river into electric energy meant changing the topography of an entire region. It involved the construction of new communities and the relocation of others; it required the building of dams, powerhouses, bridges, tunnels and dykes and it resulted in the formation of a vast new lake some 100 square miles in extent.

Upon completion late in 1959, the St. Lawrence Power Project will have a total maximum capacity of 1,880,000 kilowatts in 32 generators — 16 each in the adjoining powerhouses of Ontario Hydro and the Power Authority of the State of New York, partners in this joint enterprise. To reap this reward they will have spent $650,000,000 (shared by the two agencies and including transmission facilities in New York State), excavated 95 million cubic yards of earth and rock, poured 3.2 million cubic yards of concrete, and used millions of tons of sand, stone and steel.

At the peak of construction a combined work force of 12,000 men and women were contributing their skills and their labor to the building of various structures and other phases of this sprawling development.

Hydraulic Models

The earliest stages of construction actually took place at the A. W. Manby Service Centre at Islington, west of Toronto. Here, engineers built hydraulic scale models to reproduce every detail and characteristic of a 35-mile stretch of the International Rapids section of the river likely to affect the power development. At the site itself, initial activity was centred around the building of giant cofferdams designed to seal off the powerhouse area from the swiftly flowing waters of the St. Lawrence.

One such temporary structure, ingeniously contrived of steel cells each 65 feet in diameter with a total length of 4,500 feet was placed in position, unit by unit, across the channel

(Continued on page 10)



DURING the early phases of the project, tunnels were constructed under the Cornwall Canal to facilitate access to the powerhouse work area.

THIS FREIGHTER is passing through the closure structure in the Cornwall Dyke. The Cornwall Canal was closed off July 1 this year before flooding commenced.



between the Canadian mainland and the tip of Barnhart Island.

The seal was completed by a much smaller earth and rock structure about 2½ miles upstream, between Sheek and Barnhart Islands. (Known as Cofferdam A-1, this shorter structure was breached by high explosives on "Inundation Day," July 1 this year. Removal of the cofferdam downstream from the powerhouses was commenced on the last day of March.)

With the powerhouse site unwatered, excavation was soon underway. Concreting commenced at the Ontario Hydro powerhouse on February, 17, 1956, and it continued almost without interruption, through even the most bitter winter days, until the last big "pour" was completed early in 1958. During this time, almost 96 per cent of the concrete requirements, estimated at one million cubic yards, were placed.

First power from the St. Lawrence development was fed into the Southern Ontario system at 6.39 p.m., Saturday, July 5, when unit No. 2 went into service. Four more units were in operation in time for the official opening and the work of installing the electrical components for the remaining units will continue until late in 1959. They will be brought into service progressively.

International Boundary

Situated about two miles west of Cornwall, the two adjoining powerhouses merge at the international boundary to form a single continuous structure 3,300 feet in length and with a maximum height of 162 feet above the foundation. The powerhouses, which themselves serve as gravity dams, each contain 16 generating units and their architectural treatment is simple and functional. Known as the modified outdoor type, they do not have a conventional superstructure over the generating rooms, but the units are protected by removable hatches.

A four-unit arrangement has been adopted in Ontario Hydro's Robert H. Saunders-St. Lawrence Generating Station, each group consisting of four 60,000-kva generators, together with their associated low-voltage switching, 258,000-kva step-up transformers and 230-kv transmission circuits to the St. Lawrence Transformer Station some two miles distant.

Each generator is rated at 60,000 kva, 13.8 kv., 3 phase, 60 cycle, 94.7 rpm, .95 power factor. Concrete walls below the powerhouse deck form the generator enclosures and access is provided through motor-operated hatches so that a 300-ton gantry crane can readily remove heavy parts for repair and maintenance. The generators are cooled by passing the ventilating air through air-to-water heat exchangers, while fire protection is provided in the form of sprinkler rings and automatic carbon dioxide equipment.

The output from each group of four generators is carried by isolated-phase bus through 14.4-kv switchgear to a bank of three, single-phase transformers, each rated at 86,000 kva. The capacity of the transformers is sufficient to prevent serious overloading even with the generators operating at 15 per cent over their

CHANNEL IMPROVEMENTS constitute an important phase of the St. Lawrence development. With full steam up, these six-cubic-yard dredges are engaged in excavation at Spencer Island pier.



ON JULY 1 this year, 30 tons of explosive breached a 600-foot-long cofferdam releasing water into the headpond area. The cofferdam was one of two built to dewater the powerhouse site.



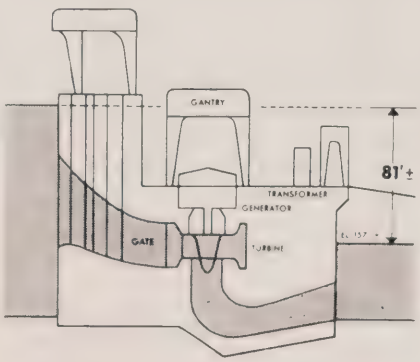
rating. Forced-oil water-cooled units were chosen on the basis of lowest installed cost, and while consideration was given to the use of three-phase transformers, the economies involved were outweighed by transportation difficulties.

Located on Tailrace Deck

Because of the length of the powerhouse and the amount of power involved, it was not physically or economically feasible to transmit the power to the shore at generator voltage. To make the low voltage connections as short as practicable, the transformers were located on the tailrace or downstream deck of the powerhouse. An automatic deluge system actuated by rate-of-rise devices affords fire protection.

Connecting the high voltage circuits to the shore posed something of a problem – considering the length of the powerhouse and the angle at which it meets the shore. Overhead circuits were ruled out for operating, maintenance and construction reasons. Thus it was decided that oil-filled cables with single copper conductors, 960 MCM in area, would be used.

The cables are located in ventilated tunnels under the deck, and are connected to a terminal structure approximately 450 feet from the powerhouse. This is the first time Ontario Hydro has used insulated cable for 230,000-volt transmission. Overhead lines carry the power from the terminal structure for two miles to the new St. Lawrence Transformer Station where it is fed into the 230,000-volt and 115,000-volt systems, as well as to certain 44,000-volt circuits for transmission to neighboring communities.



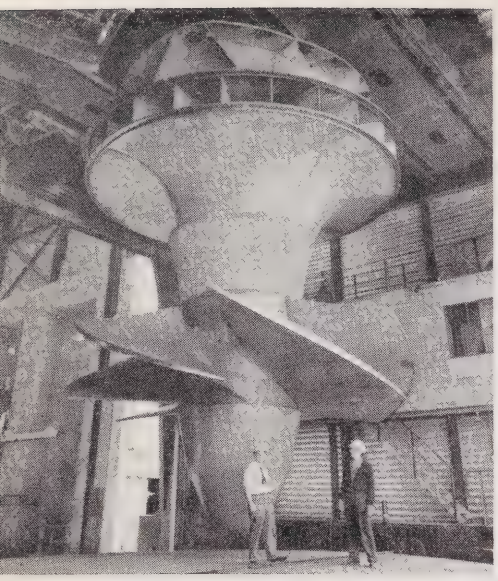
ONTARIO HYDRO'S powerhouse is a modified outdoor type. The plant's 16 generating units will be protected by removable covers rather than by a conventional superstructure.

While all generators and associated equipment are controlled from a central control room in the administration building, situated at the shore end of the powerhouse, those controls and meters essential to the operation of the plant are duplicated on control switchboards located on the operating floor adjacent to the generators. Automatic load and frequency control makes it possible to regulate the 16 generating units on sustained or fringe control, or both, from a signal transmitted over a power-line carrier from the Commission's Head Office in Toronto.

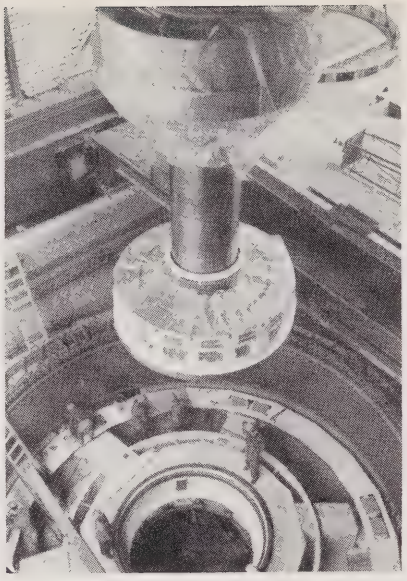
The lighting system, like all other features of the powerhouse, is modern and functional.

Significant economies were effected in heating the plant by recirculating the warm air extracted from the

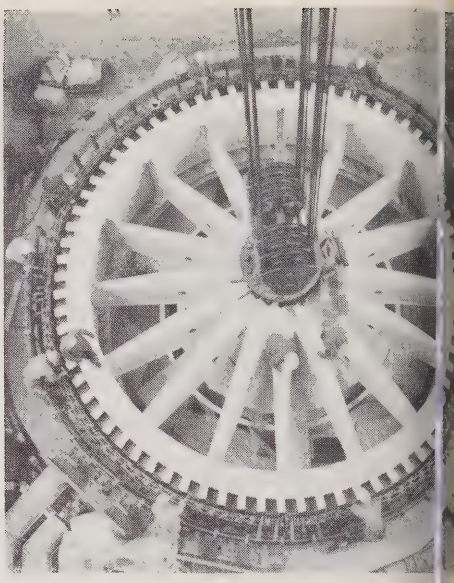
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SIZE of a 180-ton turbine runner assembly for the Commission's powerhouse is indicated by the workmen in the foreground.



A MAIN BEARING for one of the 16 generating units is being lowered into place. A portion of the stator is also visible.



INSTALLATION of a 225-ton rotor for one of the 60,000-kva. units. This view shows the close fit of the rotor within the stator.

generator ventilating circuits. Heat is extracted from the generator and transformer cooling water by means of heat pumps to warm the administration building. Copper-sheathed, mineral-insulated cables with resistance wire cores were embedded in the concrete slabs of the powerhouse deck to keep this area free from ice and snow.

Cornwall Dyke

An important adjunct of the powerhouse, the Cornwall Dyke, was completed late in 1957. This mammoth earth dam adjoins the main dam and powerhouse and extends for 3½ miles upstream on the Canadian side. The Cornwall Dyke, together with extensive dyking along the shore of Barnhart Island and the U.S. mainland, contain the waters of the headpond. Some 5,000,000 cubic yards of glacial till were placed and compacted during the construction of the Cornwall Dyke.

To accommodate 14-foot-draft ship traffic until flooding of the powerhouse headpond, a mile-long diversion of the Cornwall Canal was used after navigation opened in April, 1957. This temporary channel detoured shipping from the Ontario Hydro powerhouse work area and enabled continuation of the Cornwall Dyke across the bed of the old Cornwall Canal. A temporary aperture in a closure structure, permitted ships to pass through the dyke. Rising to a height of 80 feet above its base, and incorporating 270,000 tons of concrete, the structure was closed with stoplogs on July 1 this year in preparation for the Dominion Day flooding operation, and has since been permanently sealed by a concrete bulkhead. St. Lawrence shipping is now using two new locks and a new channel on the United States side of the river to bypass the powerhouse area.

32 Generators

While all power from the St. Lawrence project will be derived from the 32 generators in the adjoining powerhouses, two control structures, located farther upstream, form an integral part of the overall power development. The Long Sault dam will help utilize the drop in water level in the 125-miles stretch between Lake Ontario and the powerhouses near Cornwall. By concentrating the drop at one point, it will help maintain the required operating head and it will bypass water not required at the powerhouses.

The second structure, built to regulate the outflow from Lake Ontario, is known as the Iroquois dam. These two dams were built under contracts awarded by the Power Authority of the State of New York.

The Long Sault dam arcs in a graceful curve across the main channel of the river from a point near the upper or western tip of Barnhart Island to the New York mainland, entirely in the United States territory. This structure is 2,250 feet long, and rises as high as 145 feet above its foundations. The spillway section, comprising thirty, 50-foot-wide vertical lift gates, is flanked at each end by concrete gravity bulkheads extended by earth

BANKS of three, single-phase transformers, located on the station's downstream deck, step up power carried by isolated-phase bus (see next photograph) from each group of four generators. The main control room is situated in the administration building (right).





WORK in progress on the installation of the new station's isolated-phase bus facilities.

wing dams and dykes. Construction entailed placing some 670,000 cubic yards of concrete and the excavation of 6,200,000 cubic yards of earth and rock.

The Iroquois dam spans the river at a point 25 miles upstream from the Long Sault structure, between Iroquois Point on the Canadian side and Point Rockway on the United States mainland. It controls the outflow from Lake Ontario in accordance with the provisions of the Order of Aproval of the International Joint Commission for the power project.

Channel Improvement

Another important aspect of the St. Lawrence Power Project, but with less to manifest its progress, has been the channel improvement program. Carried out by both participating power agencies since late in 1954, this work has been conducted in close co-operation with the St. Lawrence Seaway agencies. The creation of a deep-draft navigation channel throughout the length of the International Rapids section, to a specified depth, width and water velocity, has been one of the objectives of this phase of construction.

Aimed primarily at improving hydraulic flow conditions for power production purposes, the excavation work will increase the operating head at the powerhouses by reducing the friction losses that would have been induced by constrictions in the river.

These channel improvements will also promote the early formation of an ice cover on the headpond — a vital consideration during the severe St. Lawrence winters. In extremely cold weather, open water invites the formation of ice crystals, which, under certain conditions, can block off a river channel completely. There was also the danger that upstream ice might break away to converge at the powerhouses.

Improvements in the tailrace area will continue until 1961 while all upstream work is scheduled for completion in 1959. Total excavation has been estimated at 59,820,000 cubic yards and the program is expected to cost approximately $84,520,000.

Construction of the facilities necessary to incorporate the output of the new St. Lawrence generating station into the Hydro system was also a major undertaking. This necessitated the building of 138 miles of single-circuit and 116 miles of double-circuit transmission line together with extensive switching gear and transformer capacity.

The St. Lawrence Transformer Station is destined to become one of the key stations in the Southern Ontario System for the transmission of power to Toronto and Western Ontario. It replaces the smaller Cornwall T.S., now dismantled, which supplied 44-kv. power in that area. It receives power from the interconnected Beauharnois generating station of Hydro Quebec, as well as from the new St. Lawrence development.

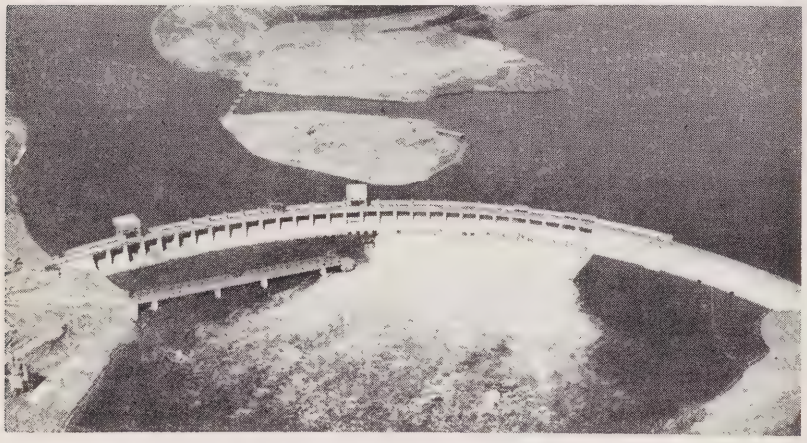
Ultimate Installation

Situated on a 25-acre site within the new city limits of Cornwall, the St. Lawrence T.S. will ultimately be

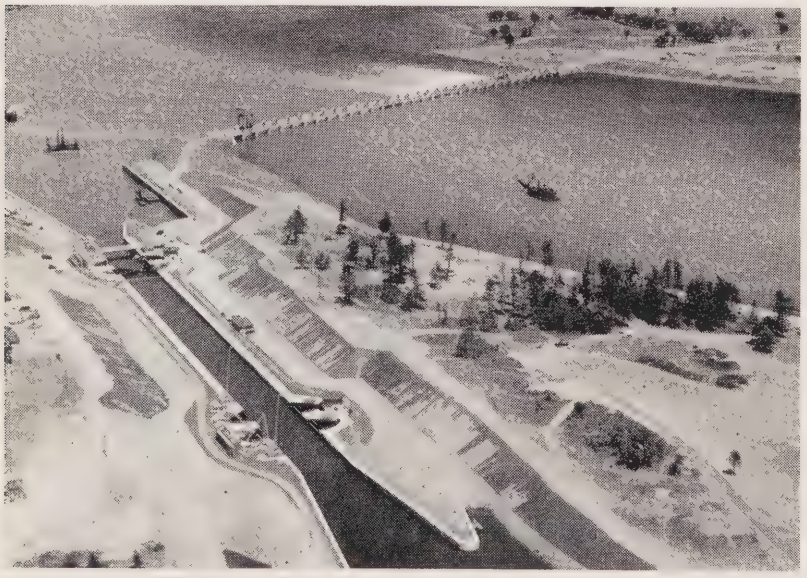
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OVERHEAD LINES carry power from a terminal structure near the powerhouse to the St. Lawrence Transformer Station, two miles distant. This new installation is destined to become one of the key stations in the Commission's Southern Ontario System.



LONG SAULT dam is situated entirely in United States territory. The structure helps maintain the required operating head for power generation and spills surplus water.

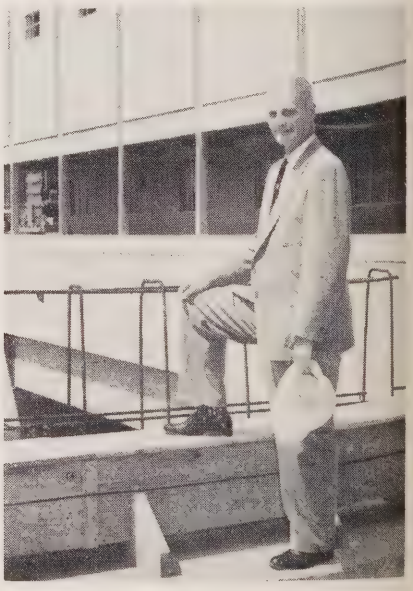


IROQUOIS LOCK (in the foreground) — a unit of the St. Lawrence Seaway System — is now carrying all St. Lawrence River shipping around Iroquois dam beyond.

expanded to include four auto-transformers, four step-down transformers, two regulating transformers, 17, 230-kv. lines, 16, 115-kv. lines, and 12, 44-kv. feeders.

With the St. Lawrence development already adding significantly to the power resources of the province, it is now apparent that all of Hydro's original objectives for this project will be attained. Flooding was commenced on schedule and initial power was delivered as originally forecast. Ontario Hydro will realize its full share of the project's output in advance of the target date for completion, while the cost, estimated as far back as 1952, will not be exceeded.

In the words of Hydro Chairman James S. Duncan speaking during the "Inundation Day" ceremonies these achievements constitute "a great tribute to the engineering skills and the careful estimating and cost controls of Ontario Hydro." ■



GORDON MITCHELL, the Commission's able St. Lawrence Power Project Director, pauses to survey work in the tailrace area.



FROM A FRIENDLY FRONTIER

A GLOWING backdrop activated by two prominent representatives of Canadian and United States public life . . . a burst of flag-filled rockets overhead . . . the steady hum of 11 hidden generators . . . and the enthusiastic applause of hundreds of spectators.

That was the focal moment of the hour-long ceremony marking the formal inauguration of the St. Lawrence Power Project on September 5.

Shortly before 11 a.m. on that date a throng of some 2,000 people, including 1,200 specially-invited guests, began to gather in a temporary amphitheatre on the tailrace deck of the 3,300-foot-long powerhouse structure. Located on the boundary line between Canada and the United States, the amphitheatre and canopied dais marked the point where the powerhouses of Ontario Hydro and the Power Authority of the State of New York merge.

The impressive backdrop for the ceremonial platform tangibly expressed the unity of the two nations, which had brought this great hydro-electric development to a triumphant reality. A Canadian "Mountie" held a map of Ontario, while a figure of "Uncle Sam" similarly held a map of New York State. Transmission lines, composed of a myriad of tiny electric bulbs led to each of the maps.

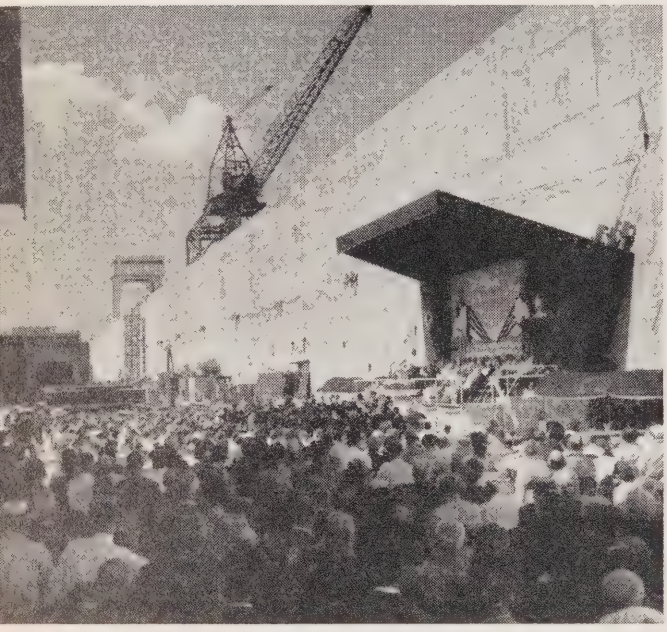
Seated against this backdrop on the sun-drenched dais were some 50 distinguished Canadians and Americans — representing many spheres of public and business life in their respective countries.

Chief among them were Ontario's Prime Minister, Hon. Leslie M. Frost, and the Governor of New York State, Hon. Averell Harriman. Ontario Hydro Chairman James S. Duncan and Robert Moses, Chairman of the Power Authority of the State of New York, presided jointly during the inaugural event.



ROBERT MOSES, Chairman, Power Authority of the State of New York, left, and Governor Averell Harriman of New York, next, shared a hearty handshake with Prime Minister Leslie M. Frost of Ontario and James S. Duncan, Chairman of Ontario Hydro, as the St. Lawrence Project officially went "on load."

Canadian and United States citizens celebrate the inauguration of the historic St. Lawrence Power Project



SYMBOLIZING the international character of the St. Lawrence Power Project, the inaugural ceremony took place at the point where the two powerhouses merge on the boundary between Canada and United States.

SPEAKING on behalf of the Province of Ontario, Premier Frost said the St. Lawrence River had made Canada "possible." One of the many tangible bonds of international unity between Canada and the United States, the river was now destined to contribute to modern transportation and to power development.

In saluting "our American partners," the Ontario Prime Minister also paid a glowing tribute to the people of Seaway Valley, "who have endured dislocations and the loss of familiar landmarks with graciousness and courage."

The St. Lawrence power development, he continued, was an indication of the challenge that faces Ontario today. Although some might feel that Ontario's power problems had been met "for many a day" by the St. Lawrence project, the requirements "of this fastest-growing jurisdiction in America" dictated the development of other sources of energy.

And Prime Minister Frost presented concrete facts to support his contention. In December, 1957, Ontario Hydro's power resources totalled 6,493,000 horsepower. On the other side of the ledger, the peak load was 6,412,000 hp., "leaving a reserve of about 81,000 hp., or 1.3 per cent.

"A desirable reserve in a system such as ours is from 12 to 15 per cent, indicating what a narrow margin we had just nine months ago."

Ontario citizens can "sleep soundly in their beds" this winter, he said, with the confidence that the power "from this great work" will take care of increasing demands.

"We then shall have a comfortable margin of reserve, but that will only last two to three years and then, without further sources of power, we would be in difficulty again."



REFLECTING the spirit of international amity that pervaded the ceremony, Hon. Leslie M. Frost, Prime Minister of Ontario, scores a humorous point during his address. Ontario Hydro Chairman James S. Duncan (left) and other platform guests smilingly respond.

Everything pointed to the fact that power load growth would approximate 6½ per cent per annum cumulative in the next few years, the speaker pointed out. The contemplated growth between 1957 and 1965 will be about 4,200,000 hp. – an increase of 65 per cent over 1957. Ontario's power problem became more apparent when the province's share of the St. Lawrence development – about 1.26 million hp. – was placed against the anticipated load growth figures.

"Thus you will readily see the necessity for the great plans inaugurated to provide thermal power. You will see, too, the necessity of bringing western natural gas and oil to this province."

Mr. Frost's confidence in Ontario's future was evident in his closing prediction that the contribution of the St. Lawrence power development will "far exceed the riches of the legendary Orient or the profits of 200 years of fur-trading.

"It is a pleasure and an honor to dedicate this river, which is so much a part of the history of this portion of America, to new areas of service."

Underlying Significance

As the key United States personality participating in the ceremony, Governor Averell Harriman pointed to the underlying significance of this joint Canadian-American undertaking.

"I take special pride in being able to congratulate our Canadian friends on their achievements and their splendid spirit in carrying out this common work," the Governor said. "Never in history have two nations worked more closely for a common objective than on these great St. Lawrence power and seaway projects. This is an example of the co-operation that is needed throughout the world in joint development of natural resources that affect more than one country."

Continuing, the New York State Governor emphasized the impact that this dual development would have on New York State and on the nation.

"Power generated here will flow out to the Plattsburgh Air Force base, to Rouses Point and to our neighboring State of Vermont, bringing cheaper energy to the residents of these areas – farmers, city dwellers and industries. In Plattsburgh alone, it is estimated that St. Lawrence power will mean an annual saving of $200,000 with a reduction of about 20 per cent in the monthly bills of residential consumers."

Frontiers of Peace

Ontario Hydro Chairman James S. Duncan, a prominent figure at the inauguration ceremonies, termed the event "a new chapter in the story of a river – one which at times divided us, but one which today not only binds us more closely together, but sets an example to all mankind of the constructive things which can be achieved by people whose frontiers are the frontiers of peace."

Mr. Duncan paid eloquent tribute to the two men, who, above all others, have been responsible for the building of this great project – "on your side, your Chief Engineer, J. Burch McMorran, and on our side, the Commission's inimitable and greatly valued Chief Engineer, Dr. Otto Holden.

"To these names I would be very remiss if I did not couple that of our able Project Director, Gordon Mitchell."

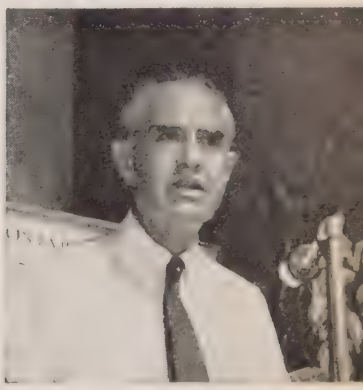
Mr. Duncan, who introduced the Canadian platform dignitaries, also presided at a luncheon for the 1,200 guests of the power agencies in Cornwall Armouries.

(Continued on page 20)





ROBERT MOSES
Chairman, Power Authority of the State of New York



HON. AVERELL HARRIMAN
Governor of New York State

MR. DUNCAN, who presided jointly with Robert Moses, Chairman, Power Authority of the State of New York, introduced the Canadian platform guests to the international audience.

PORTRAIT of a PROJECT

BY E. B. BOLWELL

RARELY has a Canadian work of art caused as much excitement as the mural painted especially for the penthouse lobby of the Administration Building at Ontario Hydro's Robert H. Saunders-St. Lawrence Generating Station.

In its way, the mural represents an undertaking almost as vast and complex as the harnessing of the St. Lawrence itself. It is certainly one of the biggest murals in Canada – measuring some 40 feet by 10 feet – and it is also one of the most unusual. Painted in abstract, expressionistic style, the mural symbolizes an artist's emotional reaction to the project.

The artist is Harold Town. Born in Toronto only 34 years ago, Mr. Town has already earned a fine international reputation. He has won coveted awards at such famous art festivals as the Sao Paulo Biennale Brazil, the International Exhibition at Lugano, Switzerland, and the International Graphic Exhibition at Ljubljana, Yugoslavia. Many other overseas countries have exhibited his work, and he is represented in several famous private collections.

On the home scene, Mr. Town won two of the 10 awards at the Second Canadian Biennial Exhibition in Ottawa last year. He has three paintings and several prints in the National Gallery of Canada, and other of his works hang in the Toronto Art Gallery, London (Ontario)



Art Gallery and the Norman Mackenzie Memorial Gallery, Regina.

Versatility is a feature of Mr. Town's career. After studying at the Ontario College of Art, Toronto, in the mid-forties, he became an editorial illustrator. But "serious" art was always his aim; now, it is also his living.

The St. Lawrence painting is the young artist's first mural. When he was commissioned to do it – last fall – he regarded it as one of his most challenging assignments. Now, completed, he says: "I've never painted anything that has made me so happy."

It was a long assignment. In January this year, after an exhaustive tour of the project, Mr. Town prepared a selection of sketches, in color, about 15 inches long. These were shown to the Commission, and then the artist went ahead with a 10-foot long "working model." Once that was approved by the Commission, the real job began.

The C.N.E. made one of its galleries available to Mr. Town. A single piece of fine canvas, imported from Belgium, was stretched across a wooden frame. Special paints – designed to dry quickly, retain color and not crack – were mixed. And the artist's hand started moving.

When the mural was completed, it was carefully rolled around a drum and transported to the project. A

(Continued on page 20)



ARTIST HAROLD TOWN, 34-year-old native of Toronto (left), explains a point of interest to Alan Jarvis, Director, National Gallery of Canada.



PORTRAIT OF A PROJECT

(Continued from page 19)

special adhesive was then used to affix it firmly to its wall in the administration building in time for the official opening ceremonies.

In the mural, Mr. Town symbolizes not only the dam, but all aspects of the project. He describes his work in these words:

"The left side of the mural represents the dangerous and uncontrolled force of nature. This thrust is checked by forms representing the dam and the creative control it exerts. Flowing from this interdiction, in gay yet orderly patterns, are shapes and more forms that symbolize the life and vitality of electric power, and the good, the order and the wonders that it creates and enhances. A sense of plan in the right side of the mural commemorates the destruction of the old towns that disappeared and the creation of new, designed communities."

Some people might ask why he chose to use an abstract form of painting to represent his feelings about the project. His answer is this:

"I felt strongly that the intricacies, as well as the overall grandeur of the project, could best be symbolized and complimented in such a form. I also wanted to do a mural in the spirit and the style of this day, so that, in the years ahead, it will age, with the dam, in a manner that will give a true picture of the creative character of our time."

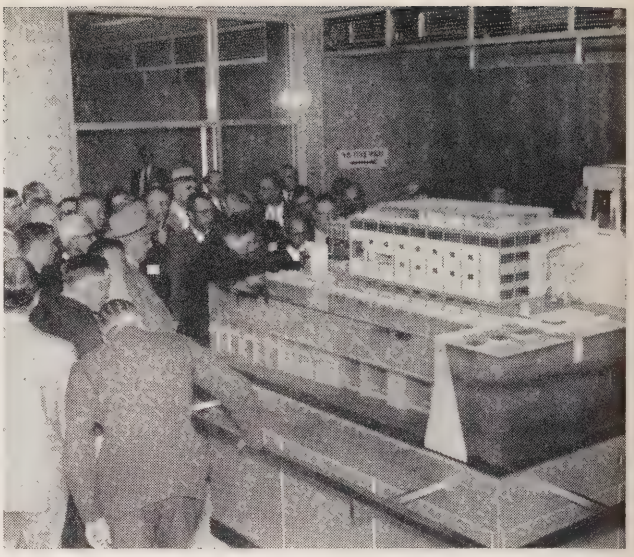
Alan Jarvis, Director, National Gallery of Canada, agrees. He says that the abstract, expressionistic style is "ideally suited to such a vast and complicated subject — the taming of nature, the reshaping of landscape, and the dynamics implicit in hydro-electric power itself."

And he also thinks that Mr. Town has met the challenge of working in this style, on such a grand scale, with "brilliant success." Upon first seeing the mural, Mr. Jarvis said: "Mr. Town has now fulfilled the promise we have all recognized for many years. The work is a great step forward in Canadian mural art and it will enhance our international artistic status enormously."

The opinion that the St. Lawrence mural will bring credit to Canada is shared by Jack Dawkins, President, Art Directors Club of Toronto, and R. York Wilson, the distinguished artist who painted the mural for the lobby of the new Imperial Oil Building in Toronto.

Mr. Dawkins says: "Harold Town has exhibited many great works overseas and has won several international awards. I am particularly delighted that this work — the best he has done — will be ours here in Canada. It is magnificent."

Mr. Wilson says: "Undoubtedly, Mr. Town's work is as fine as any mural decoration I have seen on this or the European continent. It is certain to bring Canada added artistic distinction." ■



GUESTS of Ontario Hydro and other spectators toured the Commission's generating station before the ceremony. A point of interest was a working miniature scale model of the development in the administration building. A Hydro guide demonstrated the model.

FROM A FRIENDLY FRONTIER

(Continued from page 17)

During the latter event, he expressed regret that Robert H. Saunders, "who did so much to make this day possible should no longer be with us."

(The name of the former Hydro Chairman, who died in January, 1955, has been perpetuated in the designation of the Commission's powerhouse as the Robert H. Saunders-St. Lawrence Generating Station, see page 22).

In more humorous vein, Mr. Duncan also expressed praise of the "heroes of labor on this great project."

He recalled that during a recent inaugural ceremony at the Kuibyshev power station on the Volga River, Russian Premier Nikita Kruschev had embraced and kissed an electric welder, who had just been named "Hero of Socialist Labor."

Amid laughter the Hydro Chairman observed: "It may well be that Premier Frost or Governor Harriman missed an opportunity, which, if colorful and unusual for North Americans, would have undoubtedly made the headlines in both our countries."

There are, Mr. Duncan continued, several important aspects about this international development, which reflect credit on both agencies.

"At the sod-turning ceremonies in 1954 it was stated that:

(1) The water levels would be raised in July, 1958. This was accomplished on July 1 this year;

(2) The first power would flow from the generators

in September, 1958. Eleven units are on the line today.

(3) The project would be completed early in 1960. It will be completed before the end of 1959.

(4) But more remarkable still, back in 1953, and speaking for the Canadian side only, it was stated that the cost would amount to $300 million. Now that the project is approximately 90 per cent completed, the cost is still $300 million, and on the U.S. side, I believe that the estimate was equally realistic."

While the St. Lawrence project represented a major step in Ontario Hydro's expansion, the Commission's progress had been made possible by the help and support of the Ontario Municipal Electric Association and the Association of Municipal Electrical Utilities.

Robert Moses Honored

The Hydro Chairman also commended the distinguished leadership of Robert Moses, Chairman of the Power Authority of the State of New York, in all aspects of the St. Lawrence power development.

During his address, Governor Harriman announced that the United States powerhouse had been fittingly named the "Robert Moses Power Dam."

But it was left to New York State's former Governor, Hon. Thomas E. Dewey, to epitomize the energy and tireless enthusiasm of Mr. Moses.

Mr. Dewey, who participated with Premier Frost and Rt. Hon. Louis St. Laurent, former Canadian Prime Minister, on August 10, 1954, in turning the first sod for the project, described the Power Authority Chairman in these words: "Obstacles to Mr. Moses simply whet his appetite for battle. Opposition is meat and drink to him. Without a good fight sometime during the day, I am sure he does not sleep well at night. The memorable fact is that he is usually right and he almost always wins."

To these accolades, Mr. Moses replied with characteristic brevity and modesty:

"To the many participants in this enterprise, Canadian and American, prominent and unsung, conspicuous for the moment and obscure, who have contributed generously and without stint to the control and adaptation of the forces of nature on the St. Lawrence, and have produced this gigantic manifestation of human ingenuity and indomitable spirit, I offer a proud tribute of affection and admiration.

"In particular, I lift my glass to Jim Duncan and his associates, our comrades in lighting the Promethean spark, which affords this whole disturbed, apprehensive, war-weary world an example of the benefits of hemisphere partnership and uninterrupted peaceful progress."

Another brief and eloquent eulogy to the co-operative completion of the power project was offered by Hon. Joseph B. Johnson, Governor of the State of Vermont,



HIGHLIGHT of the ceremony was the premiere of the "St. Lawrence Suite" performed by the 50-piece Royal Canadian Ordnance Corps Band under the direction of Morton Gould. Mr. Gould was commissioned by the power agencies to compose the commemorative number.

which will share in the output of the Robert Moses Power Dam and reap the benefits of the cheaper energy.

Climax of Ceremony

And so the ceremony moved to its climax as Premier Frost and Governor Harriman, flanked by Mr. Duncan and Mr. Moses, stepped to a small panel at the front of the dais.

Here they pressed a bar, while a battery of press and newsreel cameras recorded the event. Then the words "The St. Lawrence Power Project" were slowly illumined as the generators gained speed. Simultaneously light pulsed along the "transmission lines" to the maps. These, in turn, glowed with light, graphically illustrating that power was now flowing to the networks of Ontario Hydro and New York State's Power Authority.

But perhaps even more spectacular was the exploding of rockets from the towering headworks of the powerhouses. Amid a momentary pause of amazement, followed by delighted applause, these rockets released parachute-borne flags of both nations to conclude an event that will occupy a proud and pre-eminent place in North American history.

But the large throng of guests had another unexpected surprise when the 35 buses, carrying them to the luncheon in Cornwall Armouries, travelled along the broad rims of the Barnhart and Cornwall Dykes. Enroute the passengers had an excellent view of the large headpond of the development, which now covers an area of some 100 square miles and bears the unofficial name of Lake St. Lawrence. ■

ROBERT HOOD SAUNDERS, C.B.E., Q.C.

CHAIRMAN, ONTARIO HYDRO

1948-55

"It is difficult," remarked Prime Minister Leslie M. Frost of Ontario, "to imagine so dynamic a personality as Bob Saunders moulded into stone. Yet it is fitting tribute to his memory that the St. Lawrence Power Project — to which he contributed so much — be named after him."

The Ontario Prime Minister was addressing a group of reporters, photographers, Ontario Hydro officials and other dignitaries who were on hand to witness the official opening of the new Robert H. Saunders-St. Lawrence Generating Station. His words followed the unveiling of the magnificent marble tablet of dedication which is located in the foyer of the station's administration building.

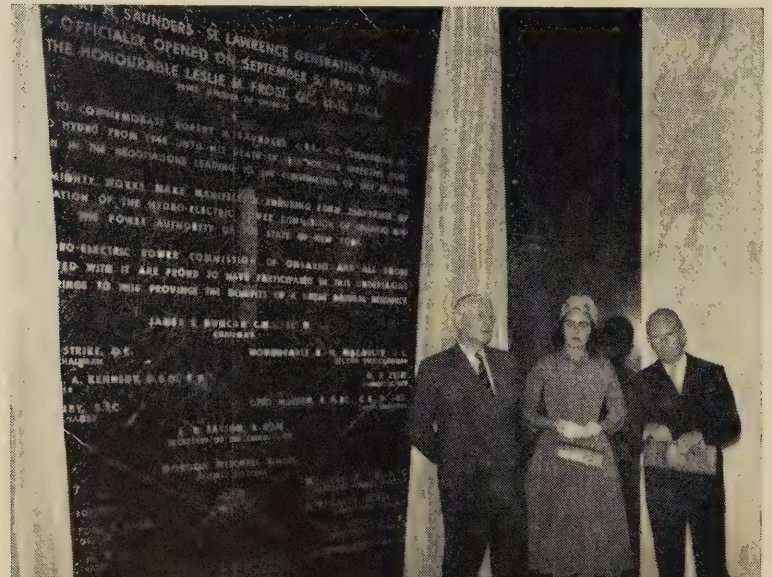
In paying tribute to Robert H. Saunders, who was Chairman of Ontario Hydro at the time work was begun on construction of the St. Lawrence Power Project, Mr. Frost continued: "He was a person of kindness and understanding; a very human being in many capacities and in many ways. His accomplishments were legion."

James S. Duncan, Chairman of Ontario Hydro, introduced Mr. Frost and stood beside him as Mrs. Robert Falconer, Mr. Saunder's daughter, and the Prime Minister unveiled the tablet.

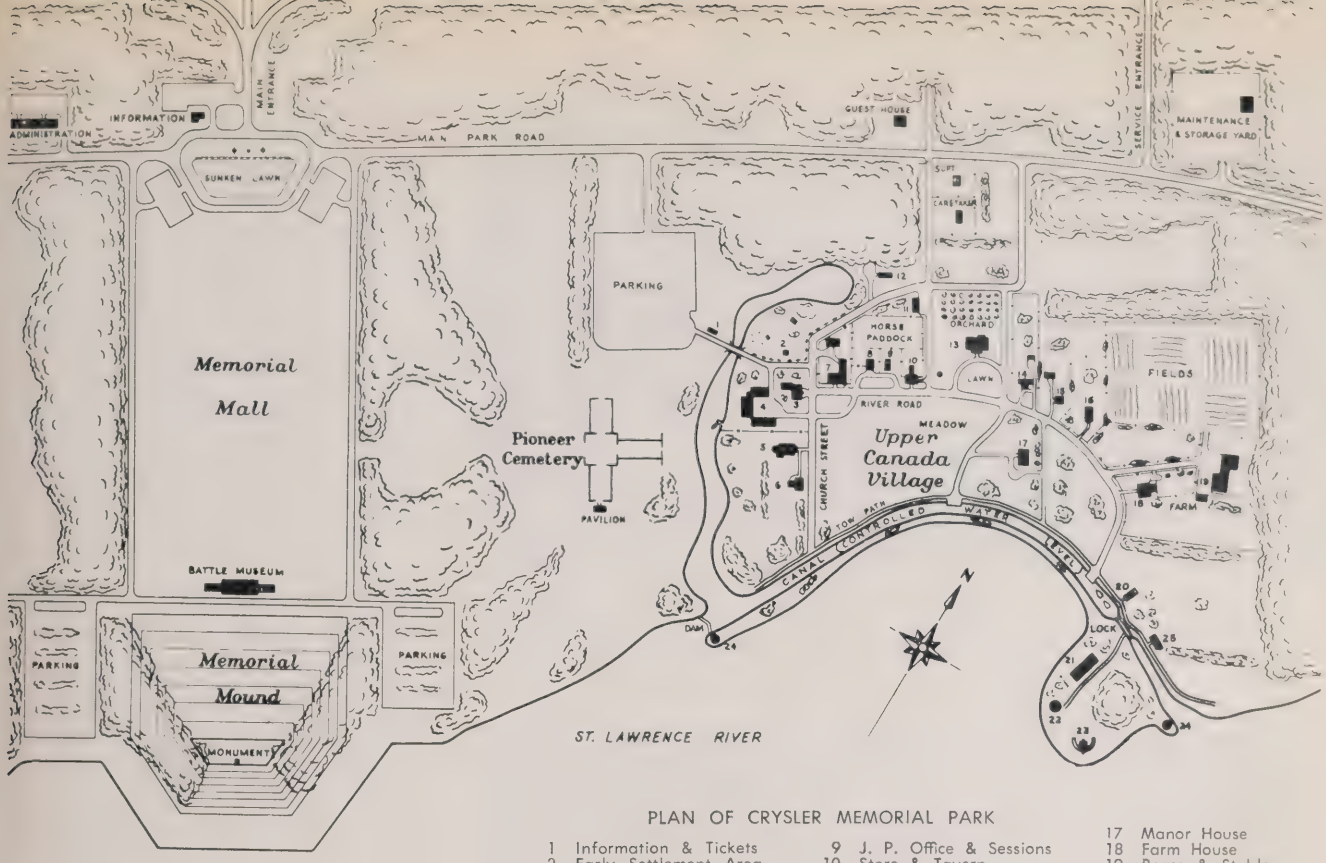
Chairman of Ontario Hydro from 1948 until his untimely death following an airplane crash in January, 1955, Robert Hood Saunders made it his personal challenge to learn as much as he could about the province which Ontario Hydro serves. He was convinced that Hydro was "the greatest single economic factor that can bring prosperity to the Province of Ontario . . . ," and worked vigorously to accelerate the development of Ontario's waterpower resources. ■



BAS RELIEF PANEL in the Robert H. Saunders Memorial on University Avenue, Toronto.



PRIME MINISTER Leslie M. Frost pays tribute to former Hydro Chairman Robert H. Saunders following the unveiling of this marble tablet in the powerhouse. Mrs. Robert Falconer, Mr. Saunders' daughter, and Hydro Chairman James S. Duncan also participated in the brief ceremony.



PLAN OF CRYSLER MEMORIAL PARK

1 Information & Tickets
2 Early Settlement Area
3 Tavern
4 Coach House & Stables
5 Church
6 Pastor's House
7 Gentleman's House
8 Shop
9 J. P. Office & Sessions
10 Store & Tavern
11 Blacksmith Shop
12 Blue Chapel
13 Museum
14 Doctor's Office
15 Schoolmaster's House
16 School
17 Manor House
18 Farm House
19 Barns & Stable
20 Boat Shed
21 Restaurant
22 Windmill
23 Gun Battery
24 Light House
25 Transportation Museum

St. Lawrence Parks —

A LIVING MEMORIAL

by Peter Maitland

THE St. Lawrence Seaway and Power Projects are bringing a new concept of life to eastern Ontario.

Although these twin projects are usually thought of in terms of shipping and electric power, their impact on the St. Lawrence Valley extends far beyond the realm of economics.

Along the banks of the St. Lawrence River, paralleling these giant developments, an extensive parks system is being brought into existence.

The St. Lawrence parks serve a two-fold purpose: the preservation of the historical associations of the St. Lawrence Valley and the creation of a recreational area regarded as unsurpassed by any other section of the country. As the seaway and power projects meet the material wants of man, so will this modern park area serve his recreational and aesthetic needs.

Even before the engineering developments were begun, it was apparent that the relocation of riverside communities, caused by the raised level of the St. Lawrence,

(Continued on page 24)



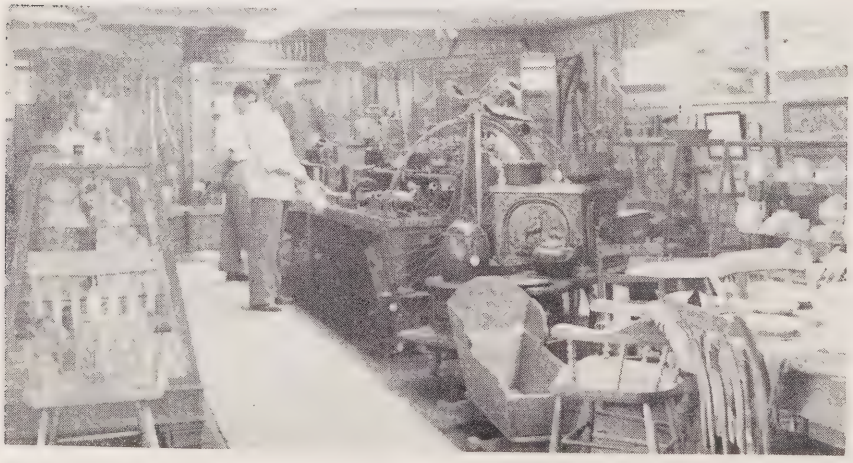
THIS MONUMENT commemorating the Battle of Crysler's Farm will occupy a commanding position.



TOMBSTONES representing pioneer families of the St. Lawrence Valley have been placed in a walled enclosure, built of brick and stone masonry taken from old buildings affected by the raised water level. Historic Christ Church, (circa 1836), which was moved from Moulinette to Upper Canada Village is visible through the opening in the memorial cemetery wall.



ANOTHER famous landmark, Cook's Tavern, has been moved to Upper Canada Village. The structure served as the headquarters for American forces during the Battle of Crysler's Farm.



THESE MEMENTOS of pioneer life in the area are on display in a museum at Morrisburg. Eventually they will be used to furnish homes and buildings in Upper Canada Village.

represented an unparalleled opportunity to redevelop the area. To meet this challenge, the Ontario Government established the Ontario-St. Lawrence Development Commission in 1955.

Now, three years after its inception, the Development Commission, under the able chairmanship of Hon. George Challies, former First Vice-Chairman of Ontario Hydro, is engaged in the building of a scenic island parkway and a system of public beaches, playgrounds and picnic and camping areas between Iroquois and Lancaster, a few miles east of Cornwall.

A Long Term Plan

The Commission's long-term plans envisage several thousand acres of parks and beaches with a historical centre as the focal point.

Crysler Park, a 2,000-acre combined recreational area and historical memorial, commemorates the victory of British and Canadian troops over American forces in 1813. Situated a few miles east of Morrisburg, the park will contain historical and folk museums, picnic areas, a working model of a lock and canal, a replica of an 18th Century bateau in which visitors may ride, a golf course and a large restaurant.

A war museum is being built at the base of the 55-foot-high earth mound upon which the battle memorial will be placed. From a mound a wide mall leads to a reception centre for visitors.

East of the memorial itself is Upper Canada Village, scheduled to be opened in 1960. An authentic reconstruction of United Empire Loyalist homes, barns, taverns, churches and shops, the village is separated from the Crysler Memorial by a brick and stone memorial cemetery. It is enclosed by a wall constructed of material salvaged from buildings situated in the area which now forms part of the headpond for the power project. Set into the wall are tombstones dating back to the early days of settlement in the late 18th and early 19th Centuries.

The Development Commission has collected some 4,000 objects of historical interest which will be used in furnishing the village. Some of this collection is already on public view in a temporary museum at Morrisburg, near the Commission's Head Office.

Progression of History

Professor Anthony Adamson of the University of Toronto, park architect and planner, says the village will be a "progression of history" with the buildings representing different periods of colonial life in the St. Lawrence Valley.

Nine parks and beaches are now in various stages of construction between Lancaster and Iroquois. Two of them, located at Iroquois and Morrisburg, are being built by Ontario Hydro as part of its program of rehabilitation in the areas affected by the power project.

Scenic Long Sault Parkway, now being built by the Development Commission, commemorates the historic Long Sault Rapids, which have now disappeared. The new parkway eventually will link nine of the 18 new islands created when the level of the river was raised.

Many St. Lawrence Valley residents believe their area will soon rival the Niagara Parks system as a tourist attraction. Assisted by its advantageous geographical position, the area already is being invaded by thousands of visitors from Canada, the United States and other foreign countries. The north shore of the St. Lawrence River is readily accessible to residents of Montreal, Ottawa and other eastern Ontario communities within a 100-mile radius of the power lake. Major centres of population in other parts of the province and the United States are within a day's drive by automobile.

For Valley Folk

But despite this influx of visitors, Commission Chairman Challies has emphasized that the new park system will primarily benefit the people of the St. Lawrence Valley communities. This aim is reflected in the composition of the Commission, which is made up entirely of citizens of eastern Ontario. First Vice-Chairman is Dr. J. L. Carroll, Brockville, while the 2nd Vice-Chairman is James Auld, M.P.P., Leeds.

Lauding the preservation of the rich historical heritage of the area, Mr. Challies outlined this aspect of the Commission's responsibility during a speech in the Ontario Legislature before his retirement three years ago.

"Here is our chance," he said, "to bring into focus for this generation, and future generations, the valorous deeds and sacrifices of the heroic men and women who started a remote and savage wilderness on the way to becoming the great and prosperous Province of Ontario."

(Continued on page 37)

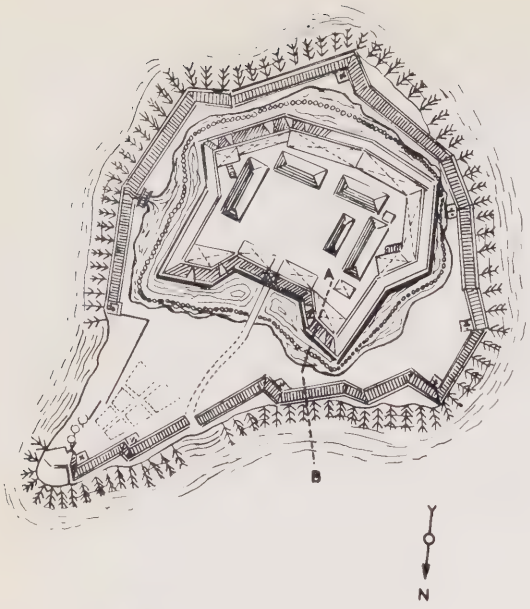




SKETCH of the scenic Long Sault Parkway, which will ultimately link a group of new islands created by the raised water level.

NINE NEW PARKS and beaches are being established along the St. Lawrence River. This is an aerial view of Morrisburg where Ontario Hydro is creating a new recreation area along the river's edge as part of its rehabilitation program for this community.

STANDING SENTINEL



PLAN of Fort de Levis, built by French forces around 1760 and destroyed by the British while advancing down the St. Lawrence River.

AERIAL VIEW of Chimney Island in the centre of the St. Lawrence River looking south to the United States shore. The dredges are deepening the navigation channel. In recent weeks contractors have been excavating the northeastern tip of the historic island. When the project is completed, top soil and grass will cover the ramparts.



Once a focal point in the struggle for supremacy between Britain and France, the St. Lawrence River's Chimney Island has a new destiny as a guide-post for the peaceful ships of the world



By Lt.-Col. F. C. Curry*

CONTRARY to general opinion, the last battle in the struggle between France and England for dominion in North America did not occur on the Plains of Abraham in 1759. It took place nearly a year later on an obscure island in the upper St. Lawrence at the head of the Galop Rapids, some five miles west of Cardinal – an island that has been partially excavated in providing a deeper channel for the St. Lawrence Seaway and Power Project.

The island has known many names. The Indians called it "Orocanenton" or "Hanging Sun," an allusion to its position in midstream. The French named it "La Gallette" from its proximity to the Indian Settlement on the north shore just opposite. Later when they had fortified the island they called it "Isle Royale" or "Isle Fort de Levis." It is now known as "Chimney Island" though no chimney has stood there for many years.

As early as 1721 Father Pierre de Charlevoix, a Jesuit priest, had noted that "a fort would be much better situated and more necessary at La Gallette than at Cataracoui (Kingston) because a single canoe cannot pass here without being observed, whereas at Cataracoui they may slip behind the islands without being seen."

Father de Charlevoix (1687-1761) was sent out to New France by the King of France in 1720 to report on the state of the growing colony. He was well-qualified for the task as the priests were the educationists of that period when fortification was taught as a branch of geometry.

But in spite of his advice in the volume of "Histoire de Nouvelle France" – one of the source books of Canadian history – the French fortified Kingston, and only built a mission at the mouth of the Oswegatchie River where Ogdensburg, N.Y., now stands.

After the taking of Quebec, and the fall of Niagara a year later, the French learned that General Jeffrey Amherst (later a Baron and first Governor-General of British North America) was gathering a great force at Oswego to come down the St. Lawrence and join with another army working up the Lake Champlain route toward Montreal, the centre of the French resistance. Urged on by their commander de Levis they built a shipyard at Pointe au Baril, now Maitland, Ont., and hurriedly threw up a fort, which they named after their commander, on this little island. At Maitland they built two small schooners, and had a third under way when Amherst started to move down the river. Their plan was to check him first with ships, then at the fort and then fight him from rapid to rapid – a plan, which a contemporary writer said would have been good, had they been fortunate enough to have sufficient men, or ships or time. But all these were lacking.

Amherst swept everything before him, he captured the ships, he burned the shipyard at Pointe au Baril, and he appeared before Fort de Levis with 8,000 men. To oppose him was a garrison of 200 under Captain Francois Pouchot. After nearly a week, with every officer wounded, and all his ammunition gone, Pouchot surrendered. Amherst destroyed the fort as effectively as possible, and swept down to Montreal. The troops guarding the rapids fell back before him.

Until a few weeks ago the old ramparts on Chimney Island were still visible towering six feet in some places above the rest of the island. Their outline, a rough pentagon, can be distinctly seen in the accompanying aerial photograph of the island. The rear or northern face of the fort shows the battering it received from Amherst's guns. He had mortars that hurled 13-inch shells, and some cannon balls this size were found when the Long Sault Rapids were drained. He may have jettisoned them on his trip down the river.

For many years the island has been favored by birds as a sort of unofficial sanctuary. In recent weeks, however, dredging contractors have been reshaping it by removing the northeastern tip of the pear-shaped piece of land for power and navigation purposes. A new channel, which will cut across this section, will be used by vessels when the Seaway opens for 27-foot navigation next year.

(Continued on page 37)

(Lt.-Col. Curry, a former member of Brockville Public Utilities Commission, is President of the Leeds and Grenville Historical Society.)



IN THE turbulent Long Sault Rapids section of the St. Lawrence, helicopters solved the problem of securing data on the river bed before the scale models were constructed.

HYDRO'

"If the hill will not come to Mahomet, Mahomet will go to the hill," Francis Bacon once wrote in his essay "Of Boldness." And it was with boldness and ingenuity that Ontario Hydro engineers reversed the procedure a few years ago and brought the St. Lawrence River to Islington, near Toronto.

Many months before the final "green light" flashed on for the St. Lawrence Power Project, Ontario Hydro engineers were girding themselves for the imminent battle of harnessing the river's International Rapids Section.

For some two or more years (see "Stream of History," page 2) prior to the start of actual construction, Commission survey crews were intensively investigating the physical secrets of the river and the terrain in the area of the development itself. The information they gathered, added to that acquired in earlier years, was used in the construction and proving of 10 hydraulic models at the A. W. Manby Service Centre at Islington.

In the intervening years these models have exerted a pervasive in-

IN QUIETER WATER Hydro surveyors took to boats, using echo-sounding oscillators which traced the profile of the river bottom on a fathometer.



Precisely built hydraulic scale models have been vital tools in St. Lawrence construction

TESTING GROUNDS

fluence on construction techniques employed at the actual sites, and have "pointed out" the best designs and sites for the associated structures, the most advantageous means of access to these sites and the velocities of the river with which contractors would have to contend. The models also permitted studies of dredging methods to determine the most effective and economical procedures.

Accurate Data

Since they were neither mere toys or displays; since they were working models on which Hydro engineers could put the calculations of their slide rules to actual tests, a high premium was placed on accuracy in the construction of the St. Lawrence scale replicas.

For this task, the model men of the Hydraulic Section of the Generation Department were well-equipped, especially after the wide experience they had gained in constructing six hydraulic scale models of various parts of the Sir Adam Beck-Niagara Generating Station No. 2. Tests on the models of components of this 1,370,000-kilowatt development are estimated to have effected net savings in construction costs of more than $5 million.

Three Models

Not one model, but three, were built to duplicate in miniature the St. Lawrence River. A single model of the 45-mile stretch of river sounds more logical, but it would have been necessary to triple the length of the model laboratory to accommodate such a unit. The three models, occupying 9,930 square feet of floor space, have also permitted uninterrupted study of all three sections simultaneously.

Model No. 1 represents the river from Ogdensburg to Leishman's Point, a distance of 16.10 miles in reality. Measuring 170 feet in length and 27 feet at its widest point, this model covers 3,820 square feet of floor space.

The second model, only 83 feet long, reproduces the Ogden Island area for a distance of 7.9 miles of river, overlapping about 2¼ actual miles of the downstream portion of the first model. The smallest of the three models, it has a mean width of 13 feet and covers 1,100 square feet.

THREE COMMISSION ENGINEERS (left to right), J. B. Bryce, Hydraulic Engineer; Keith Henry, who supervised construction of the models, and Robert Johnson, are verifying a finished section of one of the models before undertaking actual tests.



The third section, covering the dewatering and closure area from Cat Island to a point just below the site of the adjoining powerhouses, is the largest of the first three – 5,010 square feet – and contains two of the principal structures, the powerhouse and the Long Sault Dam. It is 146 feet long and has a maximum width of 40 feet.

For "do-it-yourself-ers," here are the actual scale relationships of these models to the river: Horizontal, 1 foot to 500 feet; Vertical, 1 foot to 100 feet; Rate of flow, 1 to 500,000 cubic feet per second; Velocity, 1 to 10 feet per second; and Time, 1 to 50 seconds. The vertical scale of these three models was enlarged in comparison with the horizontal scale so that the effect of the vertical variations in contour – which are much smaller than the horizontal distances – would not be lost. This also ensured a more accurate representation of the river flow.

Construction of the models was an exacting task. Since one-eighth of an inch vertically on the model is equivalent to one foot in the river itself, any settlement or heaving of model foundations would have seriously affected the results of tests.

There were other constructional problems of almost infinitesimal detail. All contour measurements were made from an instrument truss that moved on machined rails on either side of the models. These rails had to be dead-level for the measurements were in terms of fractions of an inch, representing many feet on the actual river.

In the early stages of construction, the models resembled a gigantic honeycomb, except that the "cells" were two feet square rather than

Continued on page 30



CONSTRUCTION of one of the models in progress. The squares were formed by plywood templates and cut to the height indicated by the survey data before being filled with sand and surfaced with concrete.



TESTS under way on Model No. 3, which reproduces the river from Cat Island to a point just below the powerhouse site (hidden by the foreground sign). The location of Long Sault dam is indicated by the three men (centre).

hexagonal. The squares were formed by plywood templates fitted into grooves. With the survey data in hand, the modelmen moved from template to template, marking contours. The templates were then precision sawn, according to the markings. When this had been completed, the "honeycomb" appearance was replaced by a mountain range silhouette effect.

Concrete "Skin"

The unmoveable cells were then filled with compacted sand to within two inches of the contour line and surfaced with concrete. Some 600 tons of sand were placed under the concrete "skin" of the models. Thin metal strips were inserted in the concrete when placed to give the model river bed the same degree of roughness as the prototype. Some 20,000 of these strips were embedded in these three "distorted" St. Lawrence models.

In areas representing sections of the river where excavation or other improvements were planned or likely, the cells were made so they could be lifted out and replaced by other cells, which would simulate the various proposals for channel excavations and improvements. These cells were of solid concrete.

Since the building of these three river models, others have been made to assist in the detailed construction of the permanent structures.

A model of one of the powerhouse ice chutes, built of transparent plexiglass plastic, on a scale of 1 to 36, enabled studies leading to a design for the chutes that would ensure passage of ice without damage. At the same time, construction costs were favorably affected by the redesigning.

On a scale of 1 to 80, a model was built of the Long Sault dam and its immediate area. This model was 52 feet long, with a maximum width of 44 feet and had a concrete skin. The piers, sluices and wing-walls were cast in solid concrete, with two tunnel ports in each of 17 of the sluices. In the remaining 13 sluices there were removable rollways. By this means, construction sequences could be individually tested as well as the performance of the completed structure. The model also assisted in the design of energy dissipation works immediately downstream from the sluices, which were planned to ensure the safety of the structure as a whole.

A sixth model, on a scale of 1 to 60, reproduced the proposed Massena intake and environs. Built of concrete – 34 feet long by 21 feet at its widest point – it was used in studies to determine the alignment of the intake structure, which would reduce the downstream canal velocities sufficiently to eliminate scouring of the banks. It also enabled tests to determine the hydraulic loadings on the service and emergency gates, which control the flow through the submerged ports of the structure, and also to ascertain the capacity of the ports with respect to various river levels. Substantial reductions in the excavation required in the approaches to the intake have been effected as the result of model testing.

Check Water Passages

Also built was a model of the powerhouse water passages of one of the 32 units. On a scale of 1 to 36, this model is made of transparent



ALTHOUGH they were designed and built for engineering tests, Hydro's models have created wide public interest. In 1956 they starred in a 90-minute television production, "The St. Lawrence Story." Here model men and TV representatives rehearse for the international show.

plastic. Designed to check the flow conditions in the short penstock and around the scroll cases of the turbines, it was also utilized in determining the hydraulic loadings of the three headgates at the entrance to each penstock.

An eighth model of the Iroquois dam and adjacent area on a scale of 1 to 80, measuring 54 feet by 130 feet, was constructed for guidance in the second and critical stage of construction, which was affected by the high velocity of the water passing between Iroquois Point on the Canadian side and Point Rockway on the American side of the river. A concrete skin reproduces the river bed and associated excavations, while the model of the structure itself is made of plexiglass. This replica enabled engineers to determine the rating of the 32 sluices under various conditions, and to test the effect of various cofferdam schemes on river levels and navigation during construction.

Tests have also been completed on a distorted model, at scales of 1:160 horizontally and 1:80 vertically which reproduces an area from just upstream of the powerhouses to a point below Polly's Gut. The model measures 34 feet wide by 80 feet long. The details of grade and plan of excavation to reduce tailwater level have been determined from these model studies.

In addition to the nine models described, a plexiglass-sided testing flume, 26 feet long and 30 by 30 inches in width and depth has been used for developing plans for construction of the sluices at both the Long Sault and Iroquois dams, and to determine more precisely the details of the energy dissipation works required in their immediate vicinities. The hydraulic loadings of the respective sluice and tunnel gates were also determined. The performance of the gates while being raised and lowered, was studied and the gantry crane capacities checked.

These ingenious testing devices have created almost as much interest among scientific and technical groups as their actual counterpart – the St. Lawrence Power Project itself. While not designed as an attraction for sightseers, the models have been inspected by hundreds of distinguished Canadian and outside visitors since studies began.

During 1956 and 1957, 2,672 visitors signed the register at the service centre. It is estimated that

(Continued on page 37)



SERVING their primary purpose, the models on several occasions demonstrated the soundness and feasibility of methods being followed in St. Lawrence Seaway and Power Project construction. Discussing various aspects of water level control during 1956 model tests witnessed by all Canadian and U.S. St. Lawrence agencies were (left to right): Gen. A. G. L. McNaughton, Chairman, Canadian Section, International Joint Commission; Hon. Lionel Chevrier, former President, St. Lawrence Seaway Authority; Hydro's Chief Engineer, Dr. Otto Holden, sometimes called "the genius of the project"; H. W. Lea, Canadian Section, St. Lawrence River Joint Board of Engineers, and Hon. Len Jordan, Chairman at that time of the U.S. Section, I.J.C.

IN THE PATH OF PROGRESS



NESTLING on the north shore of the St. Lawrence, Iroquois was moved 1½ miles north.

St. Lawrence Valley citizens valiantly gave up their townsites and farms to make way for a new era

ON September 19, 1955 a party of some 150 newspaper, radio and television representatives from many parts of Ontario converged on the picturesque Village of Iroquois nestling on the north bank of the St. Lawrence River.

They watched with interest as the home of Mr. and Mrs. C. A. Roberts was lifted from its foundations by a massive house-moving machine and transported from its location on Wellington St. to Lot 195 on Caldwell Drive in an area designated as new Iroquois, approximately 1½ miles north of the old site.

That was, in a sense, the official beginning of Ontario Hydro's rehabilitation program for communities and 225 farms lying in the path of the St. Lawrence Seaway and Power Project. Today the waters of the St. Lawrence cover the 20,000-acre area, which these communities and farms occupied for many generations. And the 6,500 people affected by the mammoth hydro-electric and seaway development have started a new way of life.

The giant "house-movers" have left the valley after transplanting 525 homes in new and modern townsites. Descendants of United Empire Loyalists are now living on crescent-shaped streets with new neighbors. Old stores that once flanked the river's edge have been replaced by trim, compact shopping centres. Venerable schools, churches and public buildings have given way to new, gracefully-designed edifices.

Higher Ground

In retreating to higher ground, 152 Iroquois homes were moved to new sites, while 86 new homes were built. At Morrisburg, the largest community affected by the rehabilitation program, 87 homes were moved to the northeastern periphery of the community. The entire business section moved to a handsome shopping centre consisting of more than 40 stores.

In the process, also, two new communities came into being. The former hamlets of Mille Roches and Moulinette combined to form Long Sault, eight miles west of Cornwall. Here 126 homes from the former sites have been combined with approximately the same number of new houses to form the attractive residential area, while an eight-store shopping centre, four churches and two schools complete the community.

Names Preserved

The former villages of Wales, Dickinson's Landing, Farran's Point and Aultsville, — whose names have been preserved in the designation of new St. Lawrence Islands — were gathered into the new townsite of Ingleside. Situated 13 miles west of Cornwall it comprises 102 homes from the four old communities and over 100 new houses as well as an eight-store shopping centre, four churches and two schools. Like Iroquois, the boundaries of this community embrace an area of 200 acres and can boast four miles of surfaced streets.



ONE of the first homes moved during the rehabilitation program, the Iroquois home of C. A. Roberts was settled on its foundations in the new townsite on September 19, 1955.

Just to emphasize the expansive scale of this Ontario Hydro under-



AERIAL VIEW of the relocated Village of Iroquois. The community's former site is indicated by the cleared portion (left). Iroquois dam is in the background.

taking, the rehabilitation program has involved the construction of nine new schools, 14 churches, four shopping centres, 96 multiple dwelling units, five municipal and public buildings, while 349 homes have been built privately.

Plans for the relocated St. Lawrence Valley towns included provision for better municipal services. The latest type of water, sewage, electrical and other facilities have been incorporated in each new townsite.

Contrary to the old custom of building or "stringing" stores and other commercial premises along either side of a main business street, the shopping centres in the four communities follow the modern pattern, incorporating convenient access from "through" thoroughfares, and ample parking facilities for shoppers travelling by car.

Property Acquisition

By July this year, Ontario Hydro negotiators had completed 2,130 agreements for the purchase of property affected by the power project, while only 60 remained to be settled.

Particularly significant was the fact that it was necessary to refer only 20 of the 2,130 property transactions to the St. Lawrence Board of Review, the appeal body appointed by the Ontario Government to hear such cases.

An interesting sidelight of the property acquisition program was the clearing of cottages and homes from several riverfront sections. The

(Continued on page 34)

owners of 27 such cottages on Sheek Island, just southwest of Cornwall, made agreements with the Commission to have their summer homes relocated in an area, which became Island 17 when flooding occurred in July.





TWO house-moving machines were used in relocating 525 homes. A two-story brick home (left) is lifted from its old site. In the view above it has been settled on Mille Roches Road in Long Sault, a new community created by Ontario Hydro.

HIGHLIGHTING rehabilitation work at Morrisburg was the relocation of the community's main business section (upper photograph) in a modern shopping centre (lower photograph).





Similarly, another new island – Island 1 – formed in the river on the dividing line between Osnabruck and Williamsburg Townships was allocated to summer residents, who formerly had cottages along the north shore of the river in these two townships.

Another related relocation project was the work of diverting two main arteries of transportation. Late in July last year, passenger trains began passing over a new section of track between Cornwall and Cardinal to herald completion of the relocation of 40 miles of double-line, main Canadian National Railways track between Montreal and Toronto. (Five new railway stations, each of modern brick construction with complete facilities, were built at Iroquois, Morrisburg, Ingleside, Long Sault and Cornwall.) Almost simultaneously, work crews began tearing up the old section of track, which passed through an area to be cleared for the raised water level necessary for the St. Lawrence Seaway and Power Project.

The second diversion involved No. 2 Highway, main motor-traffic artery



WORSHIPPERS emerge from the new St. Matthew Presbyterian Church at Ingleside.



TWO NEW SCHOOLS, including this public school, serve Ingleside, which includes the former villages of Wales, Dickinson's Landing, Farran's Point and Aultsville



THIS NEW STRETCH of highway was built by Ontario Hydro to replace the 35-mile section of No. 2 Highway affected by the project.

between the eastern and western areas of southern Ontario. Ontario Hydro built some 35 miles of new road north of the old highway to keep this important east-west thoroughfare open.

In the overall relocation plan, provision was made for ample expansion in each of the new communities. In Iroquois, Morrisburg, Ingleside and Long Sault, areas have been set aside for industrial development, and each community is optimistically and vigorously seeking new industries.

Further room for industrial expansion has been assured by the Ontario Government. Hon. William M. Nickle, Minister of Planning and Development, has voiced his government's intention of offering every assistance to the new communities in making all surplus land, not required for the relocation of towns, highways, railways and parks, available to industry.

With the trying relocation period a thing of the past, for the most part, the people of the St. Lawrence Valley are now facing the future with confidence. ■



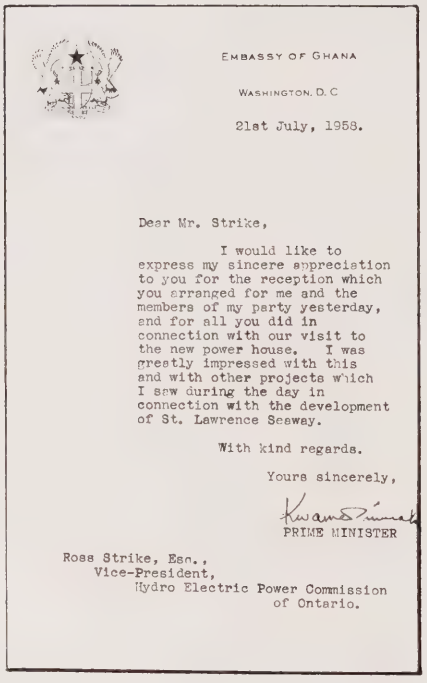
ANOTHER IMPORTANT PHASE was the relocation of a section of C.N.R. line and building of new stations at Cornwall, Long Sault, Ingleside, Morrisburg and Iroquois.



"SIDEWALK SUPERINTENDENTS"

ONE of the world's engineering marvels, the St. Lawrence Power Project has been inspected by probably more "sidewalk superintendents" than any other construction job in history. It is estimated that more than 1,500,000 visitors have viewed the project from the Canadian side since lookout and tour facilities were established three years ago. This figure is expected to exceed two million by the end of the year. The formation of a 100-square-mile power lake, in addition to its impact upon the geography of eastern Ontario and northern New York State, probably accounts for the almost overwhelming tide of visitors to the development in recent weeks. Records indicate a new daily average of 3,000, while more than 5,000 visitors have not been uncommon on holidays and on fine days. So far this year, traffic has been almost 50 per cent greater than in 1957, and this trend is expected to continue throughout the year.

The project's official Visitors' Book reads like a section of "Who's Who", containing as it does the names of many world-renowned men and women from many countries.



EMBASSY OF GHANA

WASHINGTON, D. C

21st July, 1958.

Dear Mr. Strike,

I would like to express my sincere appreciation to you for the reception which you arranged for me and the members of my party yesterday, and for all you did in connection with our visit to the new power house. I was greatly impressed with this and with other projects which I saw during the day in connection with the development of St. Lawrence Seaway.

With kind regards.

Yours sincerely,

Kwame Nkrumah

PRIME MINISTER

Ross Strike, Esq.,
Vice-President,
Hydro Electric Power Commission
of Ontario.

Distinguished Guests

One of the most recent distinguished visitors was Prime Minister Kwame Nkrumah of Ghana, who managed to fit a trip to the power project into his schedule during a four-day visit to Canada. W. Ross Strike, Hydro's First Vice-Chairman, greeted the Prime Minister and his official party, who represented one of the Commonwealth's newest member-countries.

Shown in the accompanying photographs, from left, are: Mr. Strike; Dr. Nkrumah; Kofi Baako, Ghanaian Minister of Information and Broadcasting; Gordon Mitchell, Director of the St. Lawrence Power Project; and Kojo Botsio, Ghanaian Minister of Trade and Industries. A letter of appreciation from Prime Minister Nkrumah addressed to Mr. Strike is also reproduced here. ■

STREAM OF HISTORY

(Continued from page 7)

after American co-operation with Canada in construction of the seaway was assured), and the official sod-turning ceremonies for the power development took place two months later.

This was an early start on a project of such mammoth proportions. The explanation lies in the fact that the Commission, while waiting for the final "green light," was making the best of the enforced delay by advancing preparations in all phases, such as legal, administrative and engineering.

For two years or more before the June 7 decision, a force of some 100 to 150 Hydro engineers and technicians were working with Department of Transport representatives investigating the physical secrets of the river. The information they gathered, added to that acquired in earlier Hydro surveys, was used in the construction of the Commission's St. Lawrence hydraulic models.

Thus, Ontario Hydro was ready immediately to face the challenge of harnessing, in partnership with the Power Authority of the State of New York, the hydro-electric resources of the International Rapids section of the river.

Today, power from the river is an actual fact, the seaway is nearing completion, and the St. Lawrence, more than 400 years after Cartier wrote the first page, is still making history. ■



W. ROSS STRIKE, First Vice-Chairman of Ontario Hydro, presents a copy of publication, "Functions of a Local Commission," which he prepared for the O.M.E.A., to representatives of the Village of Pickering. Left to right are: Councillor A. E. Reeve; Councillor Ronald Hall; Mr. Strike, Reeve Cyril Morley, and Councillors J. H. Purvis and Albert Swerdfiger.

A NEW MEMBER

PICKERING – the 352nd municipality to join the Hydro "family" – marked the occasion by playing host at a gala civic dinner, attended by several local officials, as well as representatives of government, Ontario Hydro and neighboring municipalities.

Reeve Cyril Morley welcomed those attending the banquet and congratulated the people of Pickering in his capacity as Warden of the County of Ontario. He mentioned that the village took its first step toward eventual purchase of its electrical system in 1921 when the community installed its first four street lamps.

Formerly served as part of the Commission's Oshawa Operating Area, the village acquired the electrical facilities within its boundaries from Ontario Hydro on July 1. Operations and the maintenance of lines will be handled by the Ajax Hydro-Electric Commission on a contract basis. To facilitate communication in the event of a breakdown in power transmission, a two-way radio system will be installed in Ajax Hydro vehicles.

Civic greetings and congratulations were extended to the village by Reeve W. J. Lawson, Pickering Township; Reeve John Mills, Ajax; Chairman Roger Conant, Ajax Hydro-Electric Commission; George Shreve, Manager, Oshawa P.U.C.; and P. D. Thomas, (M.P.P., Oshawa); Chairman Ron Hall, Pickering Councillor, read a letter of congratulation from Hon. Michael Starr, Canadian Minister of Labor, who was unable to attend.

T. H. Gibbon, Operations Engineer, East Central Region, introduced the guest speaker, W. Ross Strike, Q.C., First Vice-Chairman of Ontario Hydro, who extended congratulations to the citizens of Pickering. The speaker explained Ontario Hydro's schedule of uniform rates for the various classes of rural customers throughout the province. By purchasing its own system, he said, Pickering would be in a position to reduce rates, because of the greater density of customers.

Dealing with the question of power supply, Mr. Strike laid particular stress on the Commission's interest in producing electricity from nuclear sources. A new pilot plant (known as NPD) is scheduled for completion in 1961, and will have a capacity of 20,000 kilowatts, he said. It was also anticipated that a plant with a capacity of 200,000 kilowatts would be supplying power in Ontario by 1965 or 1966.

In concluding his remarks, Hydro's First Vice-Chairman paid tribute to the utilities of the province and their dedication to public service. –

by Joan MacLean.

HYDRO'S TESTING GROUND

(Continued from page 31)

another 1,500 also examined the models. The book contains the signatures of government officials from Britain, Japan, Korea, Niagara and South America, of top-ranking officers in the NATO forces, of representatives of the International Joint Commission and the Power Authority of the State of New York, of members of professional organizations, business firms, clubs, contractors, and of school children and tourists.

Now that the headpond area has beeen flooded, and the Robert H. Saunders-St. Lawrence Generating Station has been declared officially open, these models have served their main purpose. But the experience gained by Commission engineers in the construction and testing of the Niagara and St. Lawrence models has established their reputation as a valuable engineering tool. ■

A LIVING MEMORIAL

(Continued from page 25)

Quoting from a book dealing with the history of Dundas County, Mr. Challies suggested its dedication might be borrowed as a motto for the St. Lawrence Parks.

"To preserve a record of the settlement of one of the oldest counties in Upper Canada . . . in testimony of respect to the memories of the United Empire Loyalists themselves, and with best wishes for the prosperity of their descendants." ■

STANDING SENTINEL

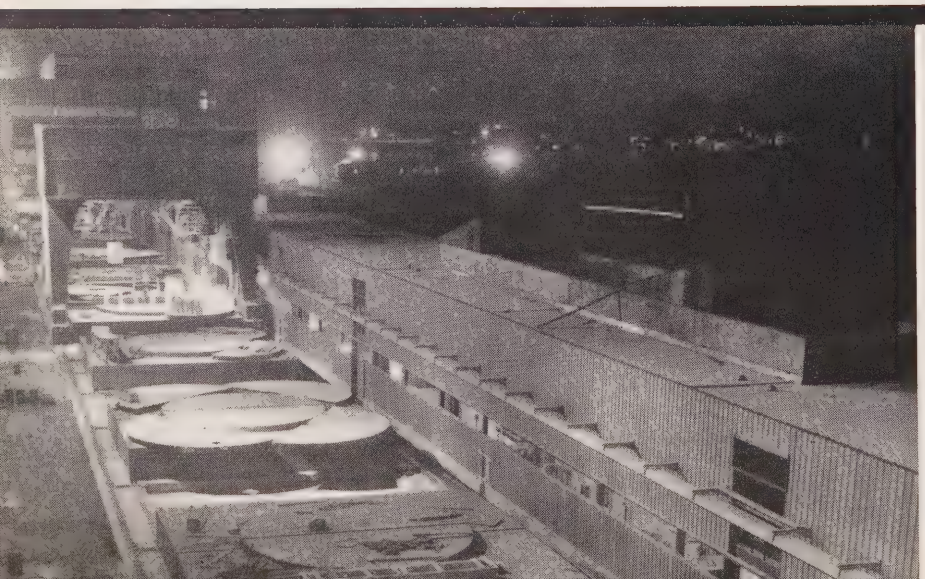
(Continued from page 27)

Although its ancient ramparts are disappearing, a plaque and cairn have been erected beside Highway 2 opposite the island to commemorate the part it played in shaping Canada's destiny. Cannon and other relics have been placed in Fort Wellington at Prescott and historic Fort Henry at Kingston. Fortunately modern progress has ordained that most of the island will remain as a sentinel – a guardian and a guide-post for the commerce-laden freighters of the world. ■



HON. Leslie M. Frost, Ontario's Prime Minister, and New York State Governor Averell Harriman are shown in the centre photograph on this month's cover with Robert Moses, Chairman of the Power Authority of the State of New York, and Ontario Hydro Chairman James S. Duncan as they jointly inaugurated the St. Lawrence Power Project on September 5 this year.





Other front cover photographs include (left): The adjoining New York and Ontario powerhouses (top) and Long Sault dam (bottom); (right): Hydro's tallest transmission towers which span the St. Lawrence River near the powerhouses (top); two Ontario homes enroute to new locations in the St. Lawrence Valley (centre), and the closure structure in the Cornwall Dyke (bottom). Back cover photographs show installation of 230,000-volt air blast circuit breakers at St. Lawrence Transformer Station (above) and a night construction scene on the deck of the Commission's powerhouse (left).



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ONTARIO HYDRO News

OCTOBER, 1958

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ONTARIO HYDRO NEWS

OCTOBER, 1958 VOL. 45, NO. 10

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COVER

Our front cover photograph for this issue was recorded about 800 air miles northwest of Toronto while one of Hydro's versatile helicopters was applying herbicidal spray along a Commission right-of-way near Kenora, Ontario (see page 2).

SALESMANSHIP AND SERVICE

It was particularly appropriate that Ontario Hydro Chairman James S. Duncan should have chosen recent district meetings of the O.M.E.A. to call attention to the era of competition which many of Ontario's municipal electrical utilities are now entering. For it is the O.M.E.A. – in partnership with its sister technical organization, the A.M.E.U. – which has, for the past half-century, provided an indispensable forum for fruitful discussion of many matters pertaining to the generation and distribution of electricity throughout the province.

As Mr. Duncan pointed out in his recent addresses to O.M.E.A. delegates (reproduced in part on pages 6-7-8): "The dynamic economy of the province can use all the energy it can get," and therefore, the arrival of natural gas is welcomed in Ontario. Nevertheless there are certain fields, particularly in the area of sales of electric energy to domestic customers, where many municipal systems must "bestir themselves" to protect their heavy investment in distribution facilities, as well as their favorable rate position.

Estimates place the number of new homes to be built in Ontario during the present year at 65,000. These new homes will offer many load-building opportunities to enterprising electrical utilities, but they also represent a substantial outlay for additional distribution facilities. Will the utilities be satisfied to provide poles, lines, transformers and other equipment to serve these new homes with the expectation of receiving only the minimum revenue from their investment? Or will they embark on a program aimed at promoting the increasing use of a wide variety of electrical appliances in the homes? As has been pointed out on several occasions, and as Mr. Duncan reiterated in his recent addresses, failure to build up a diversity of domestic load will ultimately lead to the necessity of increasing rates, and possibly "the beginning of a downward spiral (in energy use), with higher rates pushing consumption even lower."

There is, however, heartening evidence that many members of the "Hydro family" fully recognize and appreciate that the key to the problem is, as the Hydro Chairman aptly phrased it: "salesmanship and service."

This was made quite apparent at the recent Georgian Bay M.E.A. meeting, where, in addition to Mr. Duncan's address, delegates heard a discussion of methods which could materially assist utilities in meeting competition from other forms of energy. Presented by S. R. Walkinshaw, Manager of Orillia Water, Light and Power Commission, these suggestions represent the combined ideas of members of the Georgian Bay Region of the A.M.E.U. While space limitations preclude extended references to each individual suggestion, it is considered possible that even a brief mention will be beneficial to utilities seeking to promote the "Live Better Electrically" campaign.

Under the heading of promotion, this helpful little "manifesto" suggests: Initiation of radio, TV and newspaper advertising; Distribution of pamphlets explaining the benefits of electrical living; Distribution of appropriate school book covers and sponsorship of local school essay contests; Early contact with local builders about electrical installations for new buildings; Installation of latest model electric ranges in secondary school home economics classrooms; Presentable attire for all utility employees; Clean utility vehicles; Water heater displays in utility offices, supplemented by proper literature and a staff familiar with the operation and costs. The summary also dealt conclusively with staff and contractor co-operation, suggesting that utilities: Enlist the goodwill of electrical contractors, appliance dealers and employees by making information on electrical living benefits available to them, and convince them that promotion of this theme must be a co-operative effort; Arrange with appliance dealers for cooking schools and home economists' demonstrations; Supply water heaters to contractors at or near cost, possibly passing on any equipment profit to the contractor to reduce customer cost. Discussing another major aspect, service to the public, the manual suggested: Reduction of service interruptions to a minimum; Free service calls or small nominal charges; Assistance to customers in locating trouble, and advice on repairs when beyond the scope of the utility; A follow-up to ascertain that the trouble has been corrected satisfactorily; Prompt and pleasant service on flat rate water heaters, free or at a nominal charge; Friendly attention to customer complaints, making certain that all complaints are cleared up to the customer's satisfaction; A check on all customers with high accounts to ascertain the cause; Making utility offices pleasant and accessible to the public for their convenience in transacting business. In dealing with increased efficiency, the A.M.E.U. regional officers advised utilities to: Seek and introduce new working methods to cut operating costs; Study work methods to eliminate unnecessary and costly frills; Despatch and collect accounts promptly; Instal efficient bookkeeping machinery, where warranted, to speed up work and keep staffs at a minimum; Control water heaters on peak; Examine rates, particularly for water heaters, and reduce rates where possible. The plan also suggested: Financial assistance in the form of a $15 allowance for the builder of a new house or the owner of a re-wired house when they instal a 100-ampere service and range cable; A $25 allowance for changes from 2 to 3-wire, 100-amp service and range cable; Financing the purchase and installation of electric water heaters and ranges, also rewiring when done to Red Seal standards, providing for repayment on a monthly basis; Installation of flat rate water heaters on a rental basis.

by Don Wright

AERIAL ATTACK

AERIAL SPRAYING UNDER WAY ON A HYDRO RIGHT-OF-WAY.



ONTARIO Hydro's helicopter and forestry crews in recent months have been waging a relentless aerial attack on thousands of acres of new scrub growth in northern Ontario.

At this season of the year when Nature paints the province's forests in vivid hues, such an onslaught by an agency that has been instrumental in spurring the development of Ontario's timber resources might seem slightly incongruous.

The explanation will be found in the pattern of attack. Far from wanton, it is rigidly confined to remote rights-of-way for the Commission's northern network of transmission lines. Here, as elsewhere, Nature indiscriminately sews the myriad seeds from which our bushland springs. Left unchecked, this woody growth would soon make access to these power "corridors" difficult, if not impossible. Eventually there would be interference with the conductors themselves, and consequent power interruptions for the mines and mills and the growing communities in this section of the province.

The scale of this phase of line maintenance becomes apparent when the extent of Ontario Hydro's transmission facilities is considered. At the present time there are more than 9,000 miles of high voltage transmission line, representing at least 100,000 acres of right-of-way, throughout Ontario requiring brush control. In addition, growth must be cleared from many sections of the province-wide rural distribution system, which includes more than 45,000 miles of line.

Chemical Method

Attack from the air represents a new and extremely promising facet of the revolutionary chemical method of

Ontario Hydro helicopters are effective aids in northern Ontario brush control operations

brush control introduced less than 10 years ago.

Manual cutting provided the only practical method of control prior to 1949. Since woody growth in cut-over areas will sprout from two to 10 feet in a single growing season, it was impossible to gain more than a two-to-three-year respite in any section where control was required. Chemistry then came to the rescue in the form of improved herbicidal sprays, and mobile ground equipment was soon pressed into service along all but the most inaccessible transmission lines.

The original program was based on the assumption that each section of line would require spraying four times in a 10-year period. It was found, however, that an average of three sprays would accomplish the necessary control once a thick mat of rank grass and low-growing vegetation developed, making it much more difficult for tree seedlings to establish themselves. Thus the cost of chemical brush control is expected to decline considerably in the second and succeeding 10-year programs. The use of aircraft in those areas where even the most rugged mobile ground equipment could not penetrate seems to be a natural evolution. Experiments were first carried out using conventional aircraft on a contract basis, and while results were encouraging the technique and equipment proved inadequate. The Commission turned to its own versatile helicopters in 1956, and the extent of the past summer's spraying program attests to their success.

From June until September this year, the "copters," working in the most inaccessible sections of northern Ontario, treated approximately 5,500

(Continued on page 4)



DURING CALM PERIODS three helicopters maintained a continuous spraying cycle. Here one 'copter takes off on a sortie while tank trucks are "refuelling" its partners.



HUGE ROCK serves as a temporary desk while Phil Pollock, Forestry Supervisor, Hydro's Northwestern Region (left), and George Aichinger, Forestry Foreman, Kenora R.O.A., check the progress of spraying operations near Fort Frances against a route plan



HYDRO HELICOPTERS have sprayed more than 6,000 acres of right-of-way this year. Here Don Mann, Forestry Foreman, Fort Frances R.O.A., examines the results of an aerial application.

acres of right-of-way area in the northwest section, and about 1,000 acres in the northeastern part of the province with growth-destroying herbicides. This was in addition to the helicopters' regular line patrol duties for their new role evolved as the result of team work between Hydro's Forestry Section, which handles brush control, and the Line Maintenance Department, which is responsible for maintaining and operating the aircraft.

Exhaustive Tests

After exhaustive tests, the two groups, in co-operation with the aircraft manufacturers, developed special spray gear consisting of two, 40-gallon tanks mounted on either side of the "bubble." Each tank is fitted with multi-nozzled spray booms extending outwards almost as far as the rotor blades. The intense downdraft created by the whirring rotors, coupled with lower flying speeds, give the helicopter superiority over conventional aircraft in controlling the spray patterns. In spraying from the air, the greatest single limiting factor is the weather. Since overshooting the target might result in damage to adjacent woodlands, flying must often be confined to a few hours after dawn and before sundown when the wind is usually lightest and drifting is least likely to occur.

To make the most of these calm periods, three helicopters were used in the Northwestern Region this year. This arrangement permitted a continuous flying cycle, with at least one machine in the air while each spraying sortie was in progress. Skipping or overlapping was eliminated as one aircraft was ready to move in when the tanks of the preceding machine were exhausted. Of particular assistance was the radio equipment in each "whirlybird." By noting the numbers on the transmission towers visible from the air, a pilot could readily pinpoint the limits of the area he had covered and relay this information to the next aircraft.

Each flight required only a few minutes to complete. Thus "refuelling" was almost continuous, and forestry crews, standing by with tank trucks of the spray mixture, were kept on the "hop."

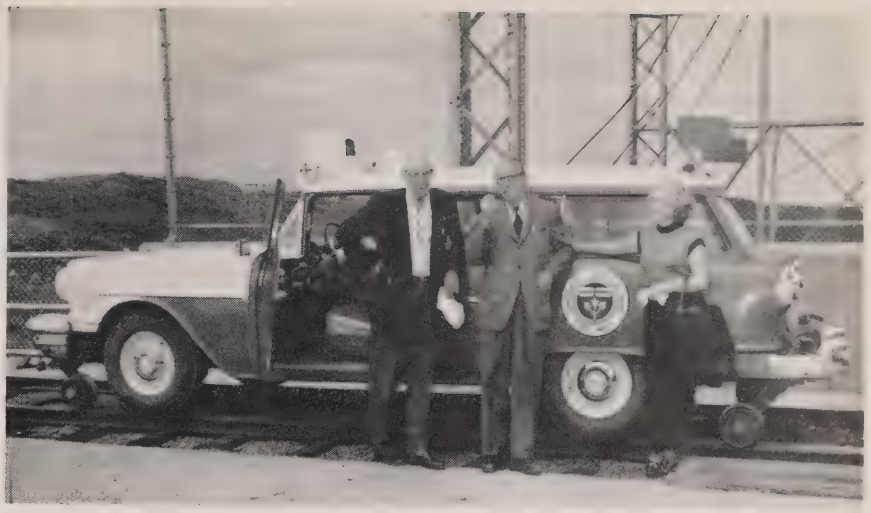
Developed Mixtures

Since brush control operations were instituted, Hydro's Research Division has played an essential and, in fact, an indispensable role in developing the various herbicidal mixtures. Today the ammunition used in this aerial warfare is known as a "leaf-stem" spray, consisting of equal parts of 2, 4-D and 2, 4, 5-T, with oil as a "carrier." A single application in concentrations as low as seven gallons to the acre has been found to be almost 100 per cent effective against such species as poplar, sumac, birch and willow, while hardier woody plants require two or three doses. Conifers are the most resistant of all, but experiments indicate that they too will succumb to chemistry.

For the present, aerial spraying is confined to the remote sections of Hydro right-of-way to avoid possible damage to susceptible crops, valuable timber stands and ornamental shrubs. Meanwhile techniques and chemical sprays are being improved to such an extent that airborne spraying may eventually become economical and safe in the more populous areas.

At any rate the era of the axe-wielder in brush control is just about over. ■

DURING his tour of northeastern Ontario, the Ontario Hydro Chairman utilized the Ontario Northland Railway's unique rail-highway car. Mr. Duncan is shown with Mrs. Duncan and Col. C. E. Reynolds, O.N.R. Chairman, beside the car at Hydro's Abitibi Canyon G.S.



(Photo by courtesy of Ontario Northland Railway)

NORTHERN TOURS



MR. DUNCAN stands beside Hydro's gasoline locomotive — the only means of transportation between Abitibi Canyon G.S. and Fraserdale on the Ontario Northland Railway Line.

IMPLEMENTING an expressed intention to visit every part of the province to familiarize himself with all aspects of its economy and its problems, Ontario Hydro Chairman James S. Duncan has completed two extensive, fact-finding tours of Northern Ontario. Embracing hundreds of miles, the tours carried the Hydro Chairman into such far-flung sections of Ontario as the Commission's Abitibi Canyon Generating Station — some 450 air miles north of Toronto.

In northwestern Ontario, he journeyed as far north as the Commission's remote Ear Falls Generating Station on the English River, approximately 1,200 miles or more northwest of Toronto. While travelling by car in this bustling part of the province, Mr. Duncan logged some 4,100 miles, exclusive of his air mileage between Toronto and the Lakehead.

Enroute he conferred with representatives of both the Northeastern and Northwestern Regions, and met members of the Commission's regional staffs, including senior personnel. Accompanied by the managers of the various Commission operating areas in each region, he inspected many of the existing hydro-electric generating stations, as well as the sites of several new construction projects.

Mr. Duncan's itinerary also included conferences with executive representatives of several of the Commission's direct industrial customers, including mines and pulp and paper plants, to discuss service problems and plans for future expansion of their operations. The Hydro Chairman had a further opportunity for gathering first-hand information on conditions obtaining in many northern sections of the province when he addressed or attended meetings of service clubs and other groups at various points. On these occasions he met members of these organizations representing a broad cross-section of the industrial, commercial and professional life in their respective districts. ■

UTILITIES FACE CHA

Distribution of natural gas will progress at the expense of elec

action is taken, Ontario Hydro Chairman

"The days of too little electricity to meet the demand . . . are over. The time when some of us could feel we were doing a favor to the customer by supplying him with electricity and then control him to see he wouldn't use too much has passed"

"There is no shortage of electricity in Ontario today. Indeed we cannot indefinitely maintain our present low costs unless we consume more"

". . . our province can use all the energy it can get and we welcome the arrival of natural gas in Ontario. I would go further and say that I hope the day will come when we can use gas in place of coal in our thermal-electric generating plants. We would do so now if it were competitive in price. But . . . we must not forget that the distribution of gas, backed by an aggressive campaign of sales promotion will progress at our cost unless we do something about it."

"In Canada, sales of natural gas between 1952 and 1956 increased by 103 billion cubic feet — or more than 250 per cent. It is significant, from our point of view, that only 15.4 billion cubic feet of this increase took place in Ontario. Our period of heaviest competition is still ahead"

"In planning our course of action we must: 1 — Recognize the specific areas from which our strongest competition is arising and take steps which will enable us to compete as effectively as possible; 2 — Recognize and accept the fact that we have a selling job to do, not only to increase the demand from our present customers, but to go out and get new ones; 3 — Recognize that to get new customers and hold on to our present ones we must do everything in our power to provide service, maintenance, assistance and information about our product that will establish and maintain the confidence and loyalty of all concerned."

THE accompanying quotations are highlights of an address delivered by Ontario Hydro Chairman James S. Duncan at recent annual meetings of the Georgian Bay Municipal Electric Association and Eastern Ontario Municipal Electric Association.

Delegates at both largely attended district gatherings gave Mr. Duncan their undivided attention and warm applause at the conclusion of these addresses, which warned of new problems facing Ontario's electrical utilities.

"You and I are facing a challenge, which we will ignore at our peril," the speaker declared as he proceeded to discuss aspects of the competition inherent in the wider distribution of natural gas throughout Ontario.

The full impact of the gas companies' aggressive promotion campaign has not been experienced by many electrical utilities in Ontario, Mr. Duncan pointed out.

"Our period of heaviest competition is still ahead," he predicted.

Since 1945 the Commission's capital expenditures have totalled approximately $1.6 billion, while the municipal utilities, in the last eight years, have added more than $191 million to their investment in plant and facilities.

Ensure Maximum Use

"It is our responsibility to make sure that energy sales are kept high enough to provide for the maximum use of these facilities. The alternative is that our operating costs are

ENGE

s unless

.A. audiences



ONTARIO HYDRO CHAIRMAN JAMES S. DUNCAN
who stressed salesmanship and service as keys to the competition problem during his address to Georgian Bay and Eastern Ontario district delegates.

going to rise and an increase in rates will eventually follow."

In the past it has been demonstrated that the domestic load is the most reliable revenue producer for municipal utilities. Thus it should be their aim to promote the increasing use of a wide variety of electrical appliances in the home.

At the present time natural gas is making large gains in two major domestic applications – space heating and water heating.

While space heating is a relatively new application in Ontario, it is one which should not be overlooked. Water heating is one field, however, in which losses to gas are of grave concern.

Mr. Duncan underlined the importance of the water heating load by citing the fact that this type of consumption represented almost 27 per cent of the total amount of energy purchased by municipal domestic customers last year.

Reduced Demand

But some utilities were already experiencing a serious setback through a reduction in this demand. The Windsor Utilities Commission, for example, lost approximately 40 per cent of its water heater load between 1951 and 1957 – due almost entirely to the effective promotion of natural gas as a substitute source of energy.

The Electric Service League of Ontario, which conducted a survey of 3,011 homes in 50 subdivisions in the Metropolitan Toronto area some time ago, found that 1,584 gas water heaters had been installed, compared with 1,427 electric water heaters.

"This, at first glance, would seem to indicate that electricity is holding its own. But when you remember that about two years ago at least 95 per cent of these installations would have been electric, this represents not only a large loss to us, but a trend that we must endeavor to reverse."

The Electric Service League survey also revealed that many builders were not installing heavy-duty wiring for electric ranges. Thus, it seems reasonably safe to assume that the purchaser of a new home, where gas water heating is installed, will purchase a gas stove rather than call an electrician and pay for the installation of the additional wiring required for an electric range."

Municipal utilities serving subdivisions where gas is encroaching on the loads, must still provide poles, lines and other distribution equipment. But the monthly revenue from these customers will be about one-half or one-third of what it would have been if electricity instead of natural gas had been chosen as the basic source of energy.

In 1957 the average annual consumption of municipal domestic customers amounted to 5,314 kilowatt-hours. Many utilities without competition from other sources of energy have consumption substantially higher than 6,000 kw-hrs.

Lower Than Average

But in municipalities where competition from natural gas has been more intense in recent years, average domestic electrical consumption was much lower than the provincial average.

Despite the operation of Hydro shops and active promotional campaigns, Chatham was 50 per cent below the provincial average while Windsor's consumption was almost 32 per cent lower.

"What stronger evidence can there be of the serious long-term effects of

(Continued on page 8)

natural gas on the domestic use of electricity?" Mr. Duncan queried.

Turning to the brighter aspects of the situation, the speaker expressed the belief that "the quality of our product, coupled with its potential for future applications still unimagined, gives us a running start."

To achieve full advantage from the "Live Better Electrically" program, utility representatives must follow-up immediately with personal contacts. There are many ways in which electricity and its applications can be made more attractive to customers, Mr. Duncan said.

Dealing with the promotion of the new water heater program, Mr. Duncan said that electric water heaters are being built to Commission specifications by manufacturers. These heaters, which have a fast recovery and improved delivery performance, will be purchased and distributed through the regional offices to rural operating areas.

Available to Utilities

The Commission plans to make arrangements for the installation, servicing and financing of these heaters on a rental basis at a rate which will help to deal more effectively with competition from other sources of energy. Once these facilities are in operation, they will be available to any municipality which feels it can incorporate them into its plans.

Municipal commissions can, of course, go further than this. Some are already extending financial assistance to customers for the purchase of many types of appliances. Mr. Duncan reported that the Orillia Water, Light and Power Commission had endorsed a new plan, which will enable customers to obtain up to $500, with two years to repay, for the installation of electric ranges and water heaters, as well as for the rewiring of their houses.

"Our Commission looks very favorably on the extension of credit to customers for the cost of increasing their housepower, with the cost being repaid at reasonable interest by monthly instalments, which are added to the usual electrical bill."

Some municipal utilities, in cooperation with appliance dealers, are making arrangements for home economists to call on their customers and explain the advantages of electric cooking and other uses of electricity. Others have taken steps to provide repair services to ensure that electric appliances are maintained in working order. Other utilities are organizing demonstrations to which electrical appliance manufacturers and dealers, architects and contractors are being invited.

"But service is the key that will open the door. It's the surest way to increase consumption. Service means satisfied customers and a satisfied customer is the greatest safeguard for the future."

Georgian Bay M.E.A. Convention

Mr. Duncan's address set the theme for the 33rd annual convention of the Georgian Bay Municipal Electric Association. Held this year at Honey Harbor, the yearly gathering attracted an attendance of some 240 delegates.

In his presidential remarks, Lt.-Col. A. A. Kennedy emphasized that this was the "year of the hard sell." But it was not a new situation in the history of Hydro or the O.M.E.A. Both organizations had witnessed the eras of the "Sir Adam Beck Circus" and the "Hungry Thirties." However, the utilities which had become "lulled into a sense of false security," must begin to promote the sale of electricity. Hydro and the municipalities could not afford to have distribution equipment operating at one-half to one-quarter of its capacity.

The same tone pervaded an address by Harry J. Foy, Manager of the Electric Service League of Ontario, who presented some interesting figures on comparative costs in house-heating with various sources of energy.

Must Join Forces

Efforts must be made, Mr. Foy said, to combat the package unit promotion of natural gas companies, particularly in the case of new buildings. To achieve this, Hydro and the municipalities must join forces with the oil-heating industry. This was being done, he said, in the London area, and was meeting with considerable success. Hydro's new water heating program could not be promoted solely on the basis of selling the water heater alone; to interest both new and existing customers, utility employees must first be educated about the advantages of electric water heaters.

It is fully expected that the Electric Service League will, in 1958, certify as many or more homes, meeting the requirements of the Red Seal Standard of wiring, as during the record year of 1957. The new Medallion home promotion, required a house to have, in addition to Red Seal requirements, wiring installed to supply at least four major electrical appliances, such as a range, water heater, clothes dryer, automatic washer, etc. This program had been well received with some 71 potential Medallion houses under construction in Ontario. To meet Medallion requirements, the builder must also participate by supplying at least one major electrical appliance and by including lighting fixtures of a quality assuring lighting to a required standard.

There had been a trend downwards in recent years in the number of new water heater installations, W. Roy Harmer, Assistant Director of Consumer Service, Ontario Hydro, reported in his paper on the "Electric Hot Water Heater Program." In 1957, he said, the number of new installations of this appliance has been only 18,857, as compared to 26,317 in 1956 and 32,186 in 1955. Failure to



HYDRO'S FIRST VICE-CHAIRMAN, W. Ross Strike, rises to introduce members of his panel, left to right: J. M. Low, Uxbridge; B. M. Graham, North Bay; Norman Smith, Owen Sound; and T. E. Dietrich, Ontario Hydro, who discussed customer relations in a public utility.



THINGS were "looking up" as these delegates, left to right: Howard Schiefele, Waterloo; Elmer Devlin, Hanover; Tom Moffat, Listowel, and W. C. Krug, Chesley, emerged from a session.

hold the present water heater load or to obtain new load would result in a serious lowering of utility load factor and a consequent reduction in revenue.

Mr. Harmer advised that Hydro had developed a series of standard water heaters, which should provide the quantities of hot water and the recovery rates necessary to meet the present-day hot water requirements of practically any family.

Water heater energy rates have been developed, which will make electric water heating competitive with gas in most areas, and yet provide sufficient revenue to meet utility costs.

Mr. Harmer stated that Ontario Hydro will make these water heaters available to its rural customers under a rental plan. The Commission will retain ownership of the water heaters, and will install and service them on a monthly rental basis, which will include the energy cost, as well as maintenance and service costs and also the fixed annual charges on the equipment. The speaker urged each utility to carefully review its present water heater policy and make a real effort to build up this important and desirable water heater load by arranging to install and service electric water heaters. He promised assistance by the regional staffs in establishing a program, and in obtaining water heaters from Ontario Hydro.

Bringing greetings from the parent body, O.M.E.A. President Bert Merson reminded his listeners that 1959 would mark the 50th anniversary of the founding of the Association. Ray Pfaff, St. Catharines, brought greetings from the A.M.E.U., on behalf of President J. A. Williamson.

During a brief address by Roy Beith, Manager, Electrical Utilities Safety Association, delegates learned that some improvement was being made among member utilities in reducing accidents. The cost of electrical accidents, medical aid, and compensation to these utilities from January 1 until July 31, 1957, had been $146,539, whereas, in the same period of 1958, this figure had been reduced to $73,108. Mr. Beith told the convention that a safety rule book for all member utilities was scheduled for delivery in October. It will be distributed to utility employees without charge on request. P. R. Locke, Chairman of the Municipal Hydro-Electric Pension and Insurance Committee, reported that some 95 per cent of all municipalities are now enrolled in the plan, and said that it would become increasingly difficult for non-participating municipalities to secure new employees without the benefits of the plan.

Panel Discussion

An interesting panel discussion on customer relations was conducted by Hydro's First Vice-Chairman, W. Ross

(Continued on page 10)

GOLDEN JUBILEE CONVENTION

O.M.E.A. President Bert Merson addressing delegates at recent O.M.E.A. district meetings announced that the O.M.E.A. and A.M.E.U. would officially observe the 50th anniversary of their founding at next year's annual convention. This Golden Jubilee Convention, he said, would be held March 15-16-17-18 in Toronto's Royal York Hotel. Mr. Merson said that Rt. Hon. John Diefenbaker, Canada's Prime Minister, had tentatively accepted an invitation to address delegates during this convention.

Strike, in his usual inimitable style. Members of the panel were J. M. Low, Uxbridge; Norman Smith, Owen Sound; B. M. Graham, North Bay, and T. E. Dietrich, Ontario Hydro. There was lively audience participation in the discussion, and a general agreement that there must be more co-operation from all concerned in advertising and public relations. It was stressed that Hydro service must be "sold" to the public and not taken for granted; that public relations "begin at home," and that utility employees must be "trained from the ground up."

Delegates accepted the recommendation of the Scholarship Committee, presented by Harry Thiess, Orillia, that the association's $200 Scholarship for 1958 be awarded to Richard Bonnycastle, Barrie.

Two resolutions, which will be forwarded to the parent association, received assent: 1. "Resolved that the interest on the present Maximum Cost Reserve Fund, plus an assessment of five cents per kilowatt, be charged to all municipalities, and be used to defray excess charges of low tension costs so that the maximum charge be not more than approximately $5.50 per kilowatt."; 2. "Resolved that, if the northerly sections of the Georgian Bay Municipal Electric Association desire to form their own association, they be given 10 per cent of our net assets after all of the current expenses of this convention are deducted (in the last ten years they have paid 8.53 per cent of our fees, and 10.6 per cent in the last four years)."

The speaker at the annual banquet, James W. Kerr, Vice-President of Canadian Westinghouse Limited, gave some vital impressions of his recent visit to the U.S.S.R., particularly of his tours of Russian plants with Ontario Hydro's Chief Engineer, Dr. Otto Holden. A paper on "Power Production Costs" was presented by Frank Lawson, Ontario Hydro, Toronto.

A. T. Smith, M.B.E., North Bay, was elected President for the forthcoming year. Other officers are as follows: Lt.-Col. A. A. Kennedy, Past President; J. M. Low, Uxbridge, 1st Vice-President; Harry Thiess, Orillia, 2nd Vice-President; Directors — Gordon Tudhope, Parry Sound; John Erdman, Walkerton; Dr. J. E. Wilson, Barrie; Joseph Chilvers, Kincardine; John J. Cross, Huntsville; A. D. Evans, Bradford, and Mayor Charles Parker, Midland. Robert Butter, Owen Sound, was re-elected as Secretary-Treasurer.



ALTHOUGH slightly separated, the new executive officers of Georgian Bay M.E.A. are "in the same boat." The group on the left includes (front row, left to right): Gordon Tudhope, Parry Sound; Lt.-Col. A. A. Kennedy, Owen Sound; John Erdman, Walkerton, while John Low, Uxbridge (left), and Robert Butter, Owen Sound are in the second row. Pictured on the right (front row, left to right): Harry Thiess, Orillia; President A. T. Smith, North Bay; Dr. J. E. Wilson, Barrie; Mayor Charles Parker, Midland; and John Cross, Huntsville. Joseph Chilvers, Kincardine, took a firm grasp on the aerial as though expecting "stormy weather" in 1959.

Customer Relations Discussion Features E.O.M.E.A. Convention

A STRONG appeal to municipal utilities to fully utilize the abilities of each staff member to improve customer relations was voiced by W. Ross Strike, Hydro's First Vice-Chairman, and proved to be another highlight of the annual convention of the Eastern Ontario Municipal Electric Association.

Held at Brockville this year, the meeting attracted a registration of some 100 delegates from many sections of eastern Ontario.

Climaxing the 1958 gathering was the official opening of the St. Lawrence Power Project on September 5, with the delegates travelling from Brockville to Cornwall by special buses for this event.

During his thorough discussion of utility customer relations, Mr. Strike emphasized the growth of Ontario Hydro and the associated municipal utilities to the point where they now were considered the third largest public service organization in Canada.

Customer Forgotten

"In the past few years we have been so busy building generating and distribution facilities that we have been inclined to forget the most important person of all — the customer," he asserted.

Probing farther into the subject, Mr. Strike set forth several suggestions for the improvement of the utility-customer relationship:

1. Ontario Hydro was in the process of developing a manual on customer relations, which could be considered in conjunction with the O.M.E.A. and A.M.E.U. and possibly modified to suit the requirements of utility representatives; 2. Call a meeting with the entire staff and tell them of the new general approach required in coping with customer problems. Then break it down by departments,

giving each employee a conception of what his function and responsibility will be in the general pattern. This will give each employee an added incentive and interest in his work. The increasing degree of mechanization in office procedures makes it essential that steps be taken to develop initiative and qualities of leadership in each employee by giving their job extra scope; 3. When a customer comes in to sign a contract, what happens? Is he welcomed by the manager or is he given an explanation of his billing for a two-month period? Many utilities supply both electricity and water, but bill jointly for both items. Yet few customers realize that their bill is for anything but electricity and that it covers a two-month period. When they compare it with the monthly gas or telephone bill, they naturally complain that it is higher; 4. Some person in a utility serving 10 to 12 thousand customers could be trained to handle follow-up and liaison with customers. Conceivably this might be the meter reader, who could prepare records of the various appliances in each home; 5. Utilities should also maintain better liaison with their commercial and industrial customers. Help them to get the best use of their electrical equipment. 6. Make certain that there are no dissatisfied customers who are reluctant to complain. Some utilities take a periodic telephone survey of their customers and get some shocks; 7. Utilities should endeavor to keep printed literature on hand for distribution to customers requiring or seeking guidance on efficient and satisfactory operation of equipment; 8. Consider the feasibility of establishing branches where bills may be paid so that customers will not have to visit the main office where parking facilities may be limited.

Presidents Speak

Greetings were extended on behalf of the O.M.E.A. by President Bert Merson, while A.M.E.U. President J. A. Williamson dealt briefly with the expanded activities of his association, particularly among the regional organizations. In this connection he mentioned the A.M.E.U. Travelling Circus which was moving from region to region with a program prepared by commercial members in collaboration with the A.M.E.U. Engineering Section representatives.

Addresses on the Commission's electric water heater program by Roy Harmer, Ontario Hydro, and electrical safety by Roy Beith, Electrical Utilities Safety Association, featured the morning business session.

During the afternoon session delegates heard P. R. Locke, St. Thomas, discuss the Municipal Hydro-Electric Pension and Insurance Plan. "Personnel Relations" was the topic of an address by W. H. Barnes, Ontario Hydro's Director of Industrial Relations, while another Commission representative, Frank Lawson, presented an illustrated talk on "Power Production Costs."

Concluding this session, delegates unanimously endorsed the report of the Nominating Committee presented by J. G. Baldwin, Lindsay, which named H. S. Graham, Newcastle, as President for the ensuing year. Other officers elected were: L. L. Coulter, Ottawa, 1st Vice-President; E. J. Bryant, Whitby, Second Vice-President. Named directors were: J. R. Carter, Kingston; Frederick Hills, Peterborough; E. G. Patterson, Carleton Place; W. W. Ashworth, Brockville, and William Boddy, Oshawa. ■



SPEAKERS at the Eastern Ontario M.E.A. meeting, left to right: W. R. Harmer, Ontario Hydro; Roy Beith, Toronto; W. Ross Strike, Hydro's First Vice-Chairman, and O.M.E.A. President Bert Merson, examine a chart on safety which Mr. Beith used in his address.

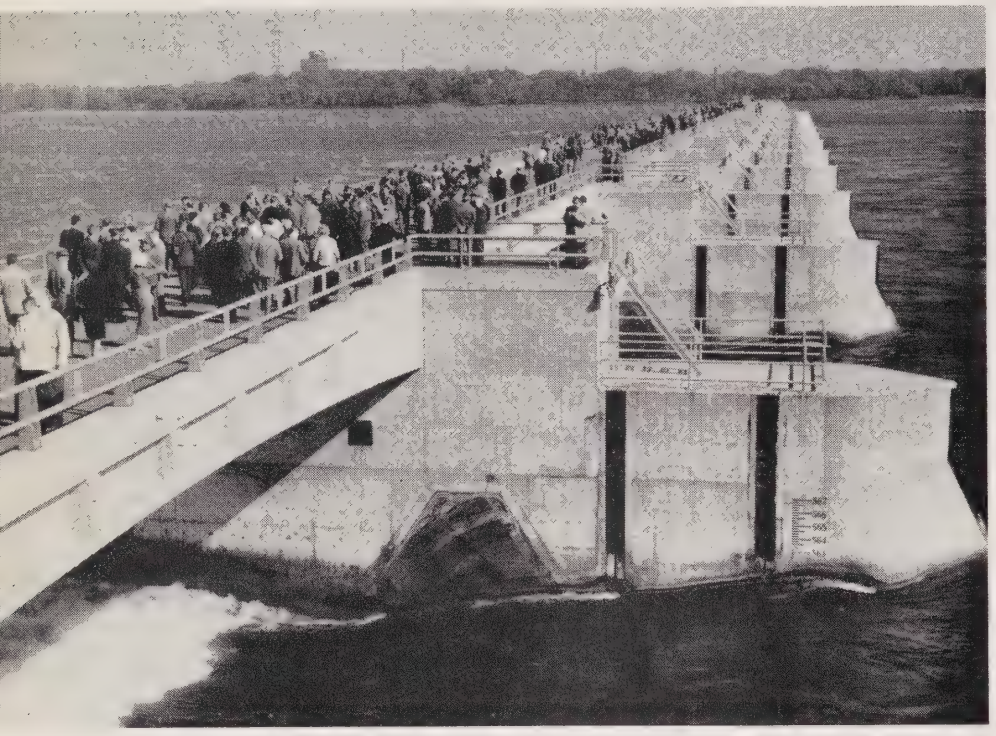


AFTER REGISTERING, Allan Huddleston, Vankleek Hill (left), and Gordon McNeely, Smiths Falls, were noted discussing the agenda.



MR. DUNCAN was noted as he greeted several members of the new E.O.M.E.A. executive, including left to right: E. J. Bryant, Whitby; W. W. Ashworth, Brockville; Dr. R. A. Patterson, Kemptville; L. L. Coulter, Ottawa; H. S. Graham, Newcastle, and J. R. Carter, Kingston.

SIZE of the distinguished group, which visited Niagara Falls after the Canadian Sectional Meeting of the World Power Conference, is indicated by this view of delegates inspecting the Grass Island Pool control structure.



ONTARIO HYDRO CHAIRMAN James S. Duncan spoke in three languages when he welcomed the international delegates during their visit to Niagara Falls, Ont.



ACCENT ON PRAISE

"'Tis geweldig" . . . "C'est magnifique" . . . "Es ist kolossal" . . . "Magnifica!" . . . "To jest wspaniale" . . . "Velekolepno!" . . .

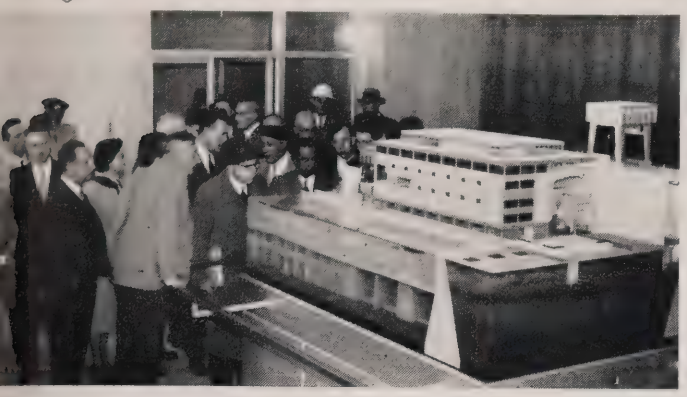
These exclamations – in Dutch, French, German, Italian, Polish and Russian respectively – were among a fusillade of foreign phrases aimed at key Ontario Hydro projects last month. Despite different accents, they all added up to the same meaning: "Magnificent!"

The plaudits came from a group of nearly 400 top-ranking engineers, scientists, economists and administrators, representing some 50 nations. They were touring Ontario after attending the Canadian Sectional Meeting of the World Power Conference in Montreal.

The group began its Ontario tour in two sections. One, numbering more than 300, went first to the St. Lawrence Power Project where they were greeted by Gordon Mitchell, Director of the great development. The remaining 40 delegates travelled to Toronto to view the Richard L. Hearn G.S., largest thermal plant in Canada. This party also visited the A. W. Manby Service Centre to study the hydraulic models of the St. Lawrence and Niagara projects.

Both parties then met in Niagara Falls for a tour of the Sir Adam Beck-Niagara G.S. No. 2, one of the largest and best-known hydro-electric plants in the world, and other associated installations. Before viewing the plant, all the visitors were officially welcomed by Ontario Hydro Chairman James S. Duncan at a compli-

WHILE INSPECTING the Robert H. Saunders - St. Lawrence Generating Station, delegates displayed keen interest in a model of the plant.





TOURING the Richard L. Hearn Generating Station in Toronto, these delegates were dwarfed by one of the turbo-generators.

ONTARIO HYDRO'S Chief Engineer, Dr. Otto Holden (left), who visited Russia earlier this year, discusses Niagara installations with Anatole Bestchinsky, chief engineer on Soviet hydro-electric projects.





THE international visitors also inspected the Niagara and St. Lawrence hydraulic models at the A. W. Manby Service Centre.

mentary luncheon in the Sheraton-Brock Hotel.

Mr. Duncan drew loud applause when he addressed the cosmopolitan audience in French and Spanish, as well as English. He was also applauded when he emphasized the international co-operation which existed in the development of resources both at Niagara and on the St. Lawrence. It was, Mr. Duncan said, an example which the peoples of this world, who are hungry for peace and a better way of life, would long to see followed by others.

After the luncheon, Mr. Duncan chatted informally with the visitors, many of whom he had met earlier at the World Power Conference, which he attended as representative of the International Chamber of Commerce. Dr. Otto Holden, Chief Engineer, Ontario Hydro, and Dr. Richard L. Hearn, former Chairman, also continued friendships they had made at the Montreal meeting.

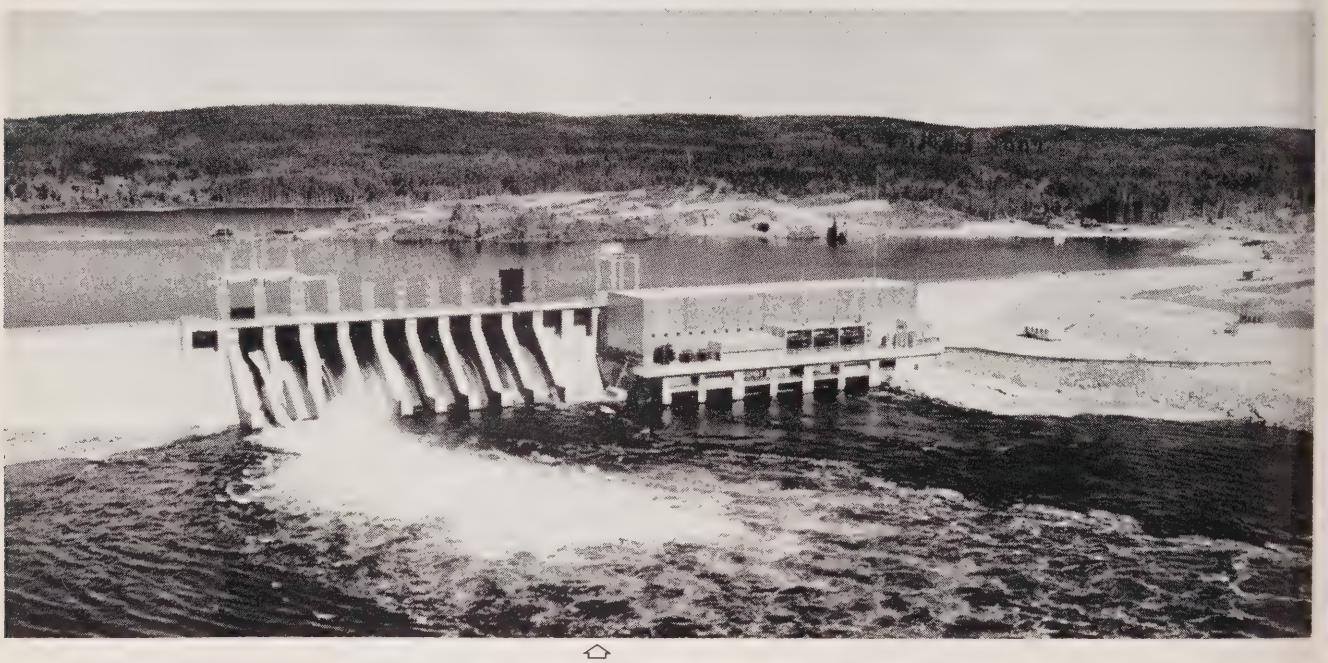
But the Niagara gathering was much more than a social re-union. Primarily, the distinguished visitors had come to study the great power development. And study they did, in what turned out to be a one-day "cram session." Throughout the exhaustive tour, they fired technical questions at their guides, scribbled pages and pages of notes, snapped rolls and rolls of film, and even made a few calculations with their slide rules. As one guide put it, the group was not only one of the most impressive to visit the Niagara project, it was also one of the most impressed.—

by E. B. Bolwell

POWER

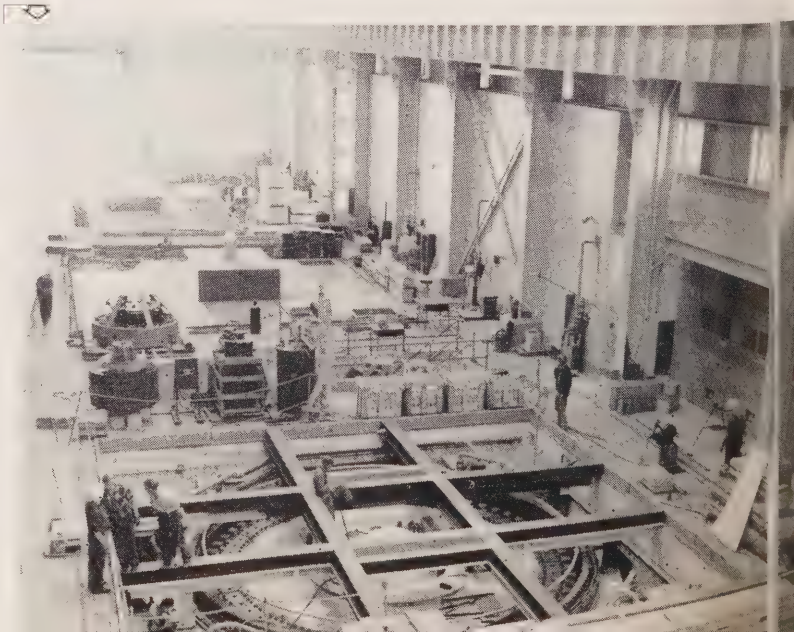


THIS aerial photograph recorded in July, 1956, shows the Caribou Falls site before construction began. The vast shoreline of Umfreville Lake above the falls explains the necessity for extensive clearing operations.



IT'S a different story today. A 1,260-foot-long gravity-type dam, incorporating the sluiceway section and the three-unit powerhouse, now spans the English River.

VIEW of the generating floor at Caribou Falls showing installation of one of the units in progress. The enclosed metalclad switchgear is also visible on the right.





MAP of northwestern Ontario indicates the location of several new Commission hydro-electric projects and the site of a new thermal-electric installation at the Lakehead.

ROM THE "CARIBOU"

MODESTLY eschewing the fanfare accorded its St. Lawrence counterpart, another English River development, Caribou Falls Generating Station, quietly joined the Ontario Hydro network a few weeks ago.

Earlier this month the third and final unit went into service, and this new 67,500-kilowatt station began to feed its full complement into the Commission's Northwestern Division grid.

Work at the site, some 40 miles northwest of Kenora, started late in 1956, and since that time construction and engineering forces have spanned the river with a 1,260-foot-long gravity type dam – extended at one end by a 450-foot clay and earth-fill wing structure. One unusual aspect of the new development was the clearance of some 19,000 acres of land for the headpond – the most extensive operation of its kind ever undertaken by the Commission.

Power from the "Caribou" will be transmitted over an 11-mile single-circuit line to Hydro's new Whitedog Falls Generating Station on the Winnipeg River and thence over 30 miles of double-circuit steel tower transmission line to Kenora. Here, at Hydro's new Kenora Switching Station, which remotely controls the operation of both plants, power will be fed into the Northwestern Division's growing system.

Completion of the $26.1 million Caribou Falls development, which has raised the overall capacity of the Northwestern Division to approximately 547,000 kilowatts, recalls the colorful gold-mining days in the Red Lake area of Ontario's Patricia District, and the Commission's successive steps in developing the hydro-electric resources of the English River. First came the Ear Falls G.S. on Christmas Day, 1929. That modest development, which has grown to a present capacity of 15,900 kw. has provided much of the driving force for extensive mining activity in that far northern section of the province. A few years ago Hydro commenced work on another plant downstream at Manitou Falls. Installation of the fifth and final unit at this project was completed last April to give this station a total capacity of 65,700 kw.

Nevertheless these English River developments represent just a fraction of the widespread program Hydro has undertaken to meet the challenge of expansion in mining and also pulp and paper industries of that rapidly-growing sector.

These construction activities are destined to pay important dividends. From the beginning of 1958 to December, 1959, Commission resources in the Northwestern Division will have been augmented by some 209,000 kw., followed by an additional 100,000 kw. in 1961 from the Thunder Bay (thermal-electric) G.S. in the Fort William - Port Arthur area. ■



TRANSFORMER EQUIPMENT is being installed on the tailrace deck of the powerhouse, which will be remotely controlled from Kenora Switching Station, 41 miles southeast.





ELECTRICAL LIVING

"Electrical Day" at this year's Canadian National Exhibition emphasized something that was evident many times during the three-week "show" – there are many advantages in modern electrical living. In fact, without electricity, the C.N.E. itself would have been, if not impossible, at least considerably reduced in its scope and variety.

On the eve of "Electrical Day" the *Toronto Telegram* even went so far as to describe what would have happened at the Exhibition without electricity. And it was a drab picture – surprising to many readers, who had not previously given the matter much consideration, and gratifying to Hydro personnel in the emphasis it placed on electricity's indispensable role. To illustrate this fact the Toronto newspaper reported that the C.N.E. at 8.55 p.m. on August 23, established a record in power demand (as well as in attendance). Its total load reached a peak of almost 10,000 kilowatts – a peak demand comparable to the entire City of Owen Sound.

A new exhibit in the Hydro Building this year demonstrated the benefits of Hydro service on the farm and its uses on a 24-hour basis. This rural exhibit used sepia panels, lighted by graded illumination, to illustrate the many applications of electricity on the farm, a model of an Ontario farm and a "fly-catching machine." This interesting device electrocutes flies and other insects, which have built up an immunity to chemical killers. Designed by Ontario Hydro engineers, it is now being manufactured commercially.

Some 12,000 brightly colored balloons, bearing the "Live Better Electrically" slogan, were distributed to delighted youngsters on "Electrical Day." And Ontario Hydro had a selection of illustrated pamphlets, both for children and for interested adults.

Aerial Message

While Canada's "big show" was in progress, thousands of patrons even saw the "Live Better Electrically" message floating across the sky. A seven-foot-high banner, towed by an aircraft, was part of a promotional campaign carried out jointly by Ontario Hydro and the Canadian Electrical Manufacturers' Association at the Exhibition. The 'plane flew above the Exhibition Grounds for approximately two hours each day and for 5½ hours on "Electrical Day," making a total of 32 hours in the air.

In the Hydro Building, which was shared by Ontario Hydro and the Toronto Hydro-Electric System, the Commission also took C.N.E. visitors on a tour in miniature of the St. Lawrence Power Project. A large-scale model of the overall area, an illuminated map showing the 100-square-mile lake created on Inundation Day, July 1 this year, and color photographs of the key structures, illustrated various aspects of the $600,000,000 project.

Hydro's two existing thermal-electric stations, new ones authorized or under construction and the Nuclear Power Demonstration plant were depicted in large pictures along the top of another new display. This exhibit described the pooling of electricity generated by hydraulic and coal-burning stations into a common system and its distribution to home and industry. A transparent plastic model of a typical nuclear-electric station was also on view.

On display again this year was a working model of the Stewartville Generating Station, illustrating the basic principles of the generation of electricity by water power, and, as well, Hydro's popular "Middletown" display, which contrasts an Ontario town at the turn of the century with its 1958 counterpart. The great changes which have occurred during 50 years of electrical progress in Ontario are illustrated graphically by the scale buildings, roads, street lighting, moving electric trolley buses and a horse-drawn street car.

Toronto Hydro Display

The Toronto System featured the latest in electrical ranges, refrigerators and clothes driers and a three-dimensional cross-section model of a six-room Canadian home. Conveniently located just above a comfortable lounge for visitors, the house was

N DISPLAY



SCORES OF BALLOONS, bearing the "Live Better Electrically" message, were distributed to groups of eager youngsters at the Hydro building entrances as the C.N.E. observed "Electrical Day" this year.

progressively lighted until the advantages of electricity in the modern home were evident throughout the house.

The "Live Better Electrically" theme was evident elsewhere at the C.N.E. too. In the Electrical and other buildings, more than 80 booths featured electrical appliances, and their place in modern living.

In the Manufacturers' Building, Birks, a well-known Toronto jewelry firm, devoted a special section of its attractive exhibit to a special salute to Ontario Hydro and the dynamic impact of power on the province's progress and economy.

A dramatic oil painting concept of the International Rapids Section of the St. Lawrence River, showing the completed power and seaway projects in this area, formed the dominant theme of the Birks' display. Attracting the interest of "Ex." visitors, too, was a simulated, colored stone replica of the famous Ontario Hydro floral clock at Queenston. ■



AN ATTENTIVE AUDIENCE hears Grant Webber, Ontario Hydro's Rural Information Officer, explain the advantages of electricity on the farm with the aid of this model.



TORONTO HYDRO'S exhibit featured this three-dimensional profile of a modern home, which attracted many C.N.E. visitors.

BIRKS, Toronto jewelry firm, saluted Ontario Hydro's achievements in this year's C.N.E. exhibit.



Footloose and fantasy free in London's

LAND OF MAKE-BELIEVE



JUDGING by his expression this Canadian Humpty-Dumpty does not fear "a great fall' — even though the junior visitor is taking liberties with his pedal extremities.



VISITORS enter London's Storybook Gardens through this replica of a medieval castle.

by Joan MacLean

ONCE upon a time, Humpty Dumpty, Little Boy Blue and all the other characters of Mother Goose and fairy tale fame existed only in the active imaginations of children. Now they live in Storybook Gardens at Springbank Park, near London, Ontario. Their village is protected by a drawbridge and a moat as well as a shining white castle. And the child-sized windows and doors of this minute structure are the first indication to grown-ups that they are entering the Land of Make-Believe. To London Public Utilities Commission goes the credit for building Storybook Gardens and to Commissioner Eric Nichols for the concept. "In the development of parks," Mr. Nichols says, "the best thing is to go and see what others are doing." And when the London utility decided two years ago that the city parks were to get a face-lifting, it sent men to tour similar spots in Canada and western United States. Last summer Mr. Nichols spent some time visiting parks in Montreal and eastern United States. The resulting ideas were pooled, sifted and revised until Storybook Gardens was born.

London P.U.C. approved the project last November, and by January construction of the 3½-acre "fairyland" had started. Earlier this year, Hon. Robert W. Macaulay, Second Vice-Chairman of Ontario Hydro, declared the $150,000 Storybook Gardens officially open. But between November and June, a great deal of planning and hard work was done, both by the commission and by a special advisory committee.

For example, the committee had to determine whether one bear would adequately represent the Three Bears and the type of house that bears should have. Finally, it was decided that three black bear cubs would romp around their two-story house. Outside a little red schoolhouse, which also serves as a shelter, romp two lambs — one white and one black — from the nursery rhymes of "Mary had a Little Lamb" and "Baa, Baa,



ALTHOUGH it may not be strictly according to Mother Goose rules, a slide in the Old Woman's Shoe is a popular innovation with youthful patrons.



RECALLING the original concept of hydraulic power, the miniature mill and waterwheel doubles as a background for avid camera fans and their subjects.

Black Sheep." Near the entrance, tiny mice occasionally run up the intriguing timepiece representing "Hickory Dickory Dock."

Patrons Participate

The advisory committee, in its planning, advocated that youthful visitors be encouraged to participate in, rather than just look at the displays. Accordingly, there is a slide in the Old Woman's Shoe and another down to the aquarium in Willie the Whale's stomach. The four King's Horses bounce up and down as they "gallop" to put Humpty together again.

The advisory committee also decided to make the useful things in the Gardens as attractive as possible. All the drinking fountains were decorated by senior art students, who also designed and painted the trim on the buildings. The pumping station was cleverly camouflaged as a Dutch mill, and the original plans for a useful but unimaginative aluminum stable to house farm animals, were discarded in favor of a big yellow barn with green doors. Farm animals, the committee felt, are just as interesting, especially to city children, as conventional zoo animals.

A kind of combination zoo-fairyland, Storybook Gardens incorporates what remained of a small zoo, abandoned when larger centres, within easy driving distances of London, established more spectacular attractions.

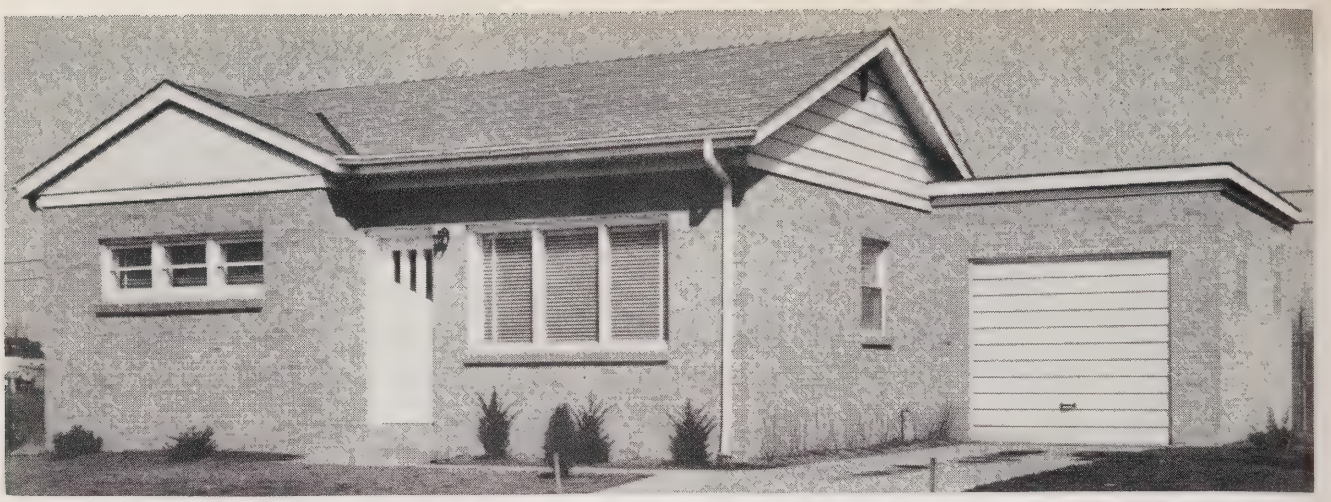
Ambitious Plans

London P.U.C. has ambitious plans for the park in the near future. They hope to design a party area resembling the Mad Tea Party setting in Lewis Carroll's "Alice in Wonderland," which will be available for birthday parties on a rental basis. The food will be served from the Pumpkin-concession booth already operating. The committee also hopes to build a monkey house, a puppet theatre and a Noah's Ark for the sale of souvenirs. Jack and Jill's well is planned for the top of a nearby hill.

A second Storybook Gardens — in flowers — was also inaugurated at London this year when the utility gave over the annual flower display in Victoria Park to a floral replica of the new Storybook Gardens. The 60-by-20-foot bed, contained from 17,000 to 19,000 red, yellow, pink, grey and bronze blooms, worked together into a three-fold preview of the original model.

When the new attraction was opened to the public, London's Mayor Allan Johnston, predicted: "Storybook Gardens will make Springbank Park more famous than Disneyland." And a few days later his prophecy came true. Because Storybook Gardens inadvertently acquired an unofficial, unpaid press agent — Slippery the Seal, who took off on an unscheduled trip across Lake Erie all on his own. The troubles and travels of Slippery, or Cyril the Sea Lion, are now as legendary as the traffic-stopping, home-coming parade, complete with brass bands, and the dinner held in his honor. Slippery had come home to Storybook Gardens.

And he's still there helping in the task of making countless youthful patrons "live happily ever after." ■



RESEMBLING OTHER HOMES in the area, Windsor's Prince Road substation has a transformer not a car in the adjoining garage.

"The Postman Rings Twice"

and never gets an answer!

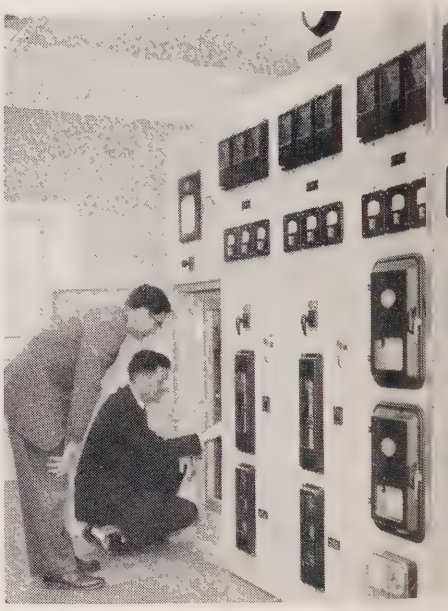
If you went house-hunting along Prince Road, in Windsor, it's more than likely that you would try to buy No. 1266. This buff-brick building resembles an ideal home for a small family. It's new, it's modern, it's clean. It has a neat lawn and garden in front and a garage on one side.

But No. 1266 is not for sale. In fact, No. 1266 is not a house. It is one of the new, cottage-style substations being erected by the Windsor Utilities Commission.

Few people would recognize the building as a substation. Venetian blinds on the windows obscure the equipment inside, while the transformer is housed in the "garage". The overall effect is so beguiling that salesmen often leave samples on the doorstep.

Even at night the illusion is maintained. Three lamps automatically switch on as darkness falls. Chinks of light from one lamp are visible through the louvres of the venetian blinds, while another automatic fixture is provided at the rear of the building. A third glows over the front porch, giving the impression that visitors are expected. In other words, at all times, No. 1266 Prince Road achieves the aim of the Windsor Commission: it blends in perfectly with its surroundings.

In recent years, many utilities have adopted programs for making substations harmonize with their particular location. The Windsor Commission now has two cottage-style substations completed and two more under construction (one of which will feature a lunchroom for line crews working in the area). In addition, it has built in an industrial area, a substation that appears to be a small, smart commercial building. Replacement of other open-bank, exposed transformer substations will continue as existing equipment becomes obsolete and loads increase.



INSIDE the cottage-style substation, the metal-clad switchgear is inspected by H. R. Soutar, Chief Engineer, Windsor U.C. (left), and Assistant Hydro Superintendent W. S. Mullin.

All the new buildings have underground cable systems. Unattended, the substations are monitored by a central control system at the main substation. If faults occur, station

feeders automatically attempt to clear them.

The Windsor Commission's Chief Engineer, H. R. Soutar, points out that the new substations have attracted wide interest among many United States utility representatives. He adds that the majority of the interested parties are most impressed with the low cost involved.

The cost of construction at No. 1266 Prince Road, including the manhole and underground duct system, was $15,479. The main structure measures 24 feet by 30 feet; the "garage" is 22 feet by 18 feet. All walls are 8-inch concrete block with brick facing and the floor of the "cottage" is reinforced concrete.

— by E. B. Bolwell.

Port Colborne Sells Office Building

Port Colborne Hydro-Electric Commission has sold its headquarters building to the Canadian Bank of Commerce, which will erect a new building on the site.

The local utility will move its offices at the end of 1958 into a modern one-story building adjacent to a recently completed service centre, thus consolidating its operations at one point. However, the commission is retaining a strip of land at the rear of the property acquired by the bank for a substation serving the Port Colborne downtown area.

Ernest F. Barrick, Chairman of the commission, has announced arrangements with local banks to accept payment of Hydro accounts after the utility moves out of the business section.

Essex P.U.C. Sells Building to Town

Essex Public Utilities Commission has sold its two-story office building to the municipal corporation. The building has been used jointly as a town and utilities office for several years.



SIX MEMBERS of the British Commonwealth Scientific Laboratories group, left to right: Stewart Bastow, Australia; Dr. D. M. Blair, Southern Rhodesia; Dr. W. M. Hamilton, New Zealand; Dr. E. W. R. Steacie, President, Canada's National Research Council; Sir William Slater, United Kingdom, and Dr. F. G. Torto, Ghana, view the St. Lawrence powerhouse from the headworks.

HYDRO HOST TO MANY VISITORS

THERE'S rivalry developing between Ontario Hydro's Robert H. Saunders-St. Lawrence Generating Station and its Sir Adam Beck-Niagara Generating Stations as points of interest for scheduled groups of international visitors and for casual sightseers representing many nations.

Perhaps the St. Lawrence Power Project might qualify for top position in public interest. Typical of the many parties which have toured the development in recent weeks were the members of the British Commonwealth Scientific Laboratories group, who were accompanied on their tour by Dr. E. W. R. Steacie, President of Canada's National Research Council.

Although the St. Lawrence Power Project may have been headlined more frequently this year, Hydro's Niagara River developments are still attracting engineers, power experts and scientists from many foreign countries.

The only Canadian stop for 20 prominent executive engineers from far eastern countries, on an extensive tour of the United States and Europe, was at the Niagara project. There the group, which is sponsored by the United Nations Economic Commission for Asia and the Far East, inspected the Sir Adam Beck-Niagara Generating Station No. 2. Another group representing a dozen far eastern countries also viewed the Niagara Power Project this fall. The visit of the 12 irrigation and power engineers was part of a three-week tour of Canada under the auspices of the United States International Co-operation Administration and the U.N.

A week previously, a group of Russian power experts and architects toured the project, while the United Arab Republic Ambassador to Canada, El Husseini Elkhatib, accompanied by Dr. Moh Fathalla Elkhatib, member of the Yemen mission to the U.N. and G. Cecil Morrison, of Ottawa, briefly visited the Sir Adam Beck station and Niagara's scenic sites. ■



CHAIRMAN BERT MERSON (right) presents Mr. MacTavish with a wallet and "enclosure" on behalf of the Toronto Electric Commissioners, while Mrs. MacTavish, holding the roses she received, looks on. In the background is the TV set presented by the utility's employees.

HONORS FOR A VETERAN

HONORING more than four decades of public service, Commissioners, executives and staff of the Toronto Hydro-Electric System, numbering 800 or more, gathered at a recent complimentary dinner for retiring General Manager, H. J. MacTavish.

Apart from this spontaneous tribute, Mr. MacTavish was the recipient of many tangible expressions of esteem and numerous spoken tributes. In recognition of his outstanding and lengthy service to one of the world's largest muncipally-owned utilities, Chairman Bert Merson presented Mr. MacTavish with a wallet and a suitable "enclosure" on behalf of the Toronto Electric Commissioners.

The employees were represented by N. I. Fisher, who has established a unique record of 48 years' service with the Toronto System, and on their behalf he presented the "boss" with his first television set. A pipe, tobacco and dozens of boxes of matches for the man "who smokes matches in his pipe" accompanied the presentation from the employees.

A member of the Toronto Hydro War Veterans' Association since its formation, Mr. MacTavish was presented with a golf bag by William J. Hamilton, the oldest Past President of the Association, while Miss Greta McConnell presented a bouquet of 44 red roses to Mrs. MacTavish — one for each year of her husband's service with the utility.



MR. MacTAVISH extends congratulations to John S. McGregor, who has been appointed to succeed him as General Manager.

Expressing commendation on behalf of the City of Toronto, Mayor Nathan Phillips complimented "Mr. Hydro-Electric" on his part in "building up a humble system to an organization magnificent in its proportions."

To these accolades, Mr. MacTavish replied with characteristic Scottish modesty, adding a word of caution to those who will guide the destinies of the Toronto System in the future years: "The best guide to our conduct is the Golden Rule — treat the customers as you would like to be treated yourself."

The Scottish atmosphere prevailed throughout the entire event. Two employees of Toronto Hydro, Pipe Major Archie Dewar and Pipe Sergeant Ross Stuart, in the uniform of the 48th Highlanders Regiment, escorted head table guests to their places.

Then, too, Vice-Chairman John McMechan introduced another good Scot, John S. McGregor, who is to succeed Mr. MacTavish as General Manager.

Mr. McGregor joined Toronto Hydro in 1911, and became Paymaster in 1912, Treasurer in 1942, Assistant General Manager in 1951 and added the Secretary's duties in 1954.

Mr. McMechan also introduced Harry Hyde, who was recently appointed Assistant General Manager and Chief Engineer. He became Engineer of Planning and Design in 1951, Assistant Chief Engineer in 1952 and Assistant Manager in 1957.

FOTO-NEWS



HONOR UTILITY PIONEER – J. Gordon Archibald, formerly General Manager of Woodstock P.U.C., recently was awarded a long-service Masonic medal recognizing his half-century record as Past Master of Oxford Lodge, No. 76, A.F.A.M. He joined the lodge in 1901 and became Master in 1908.

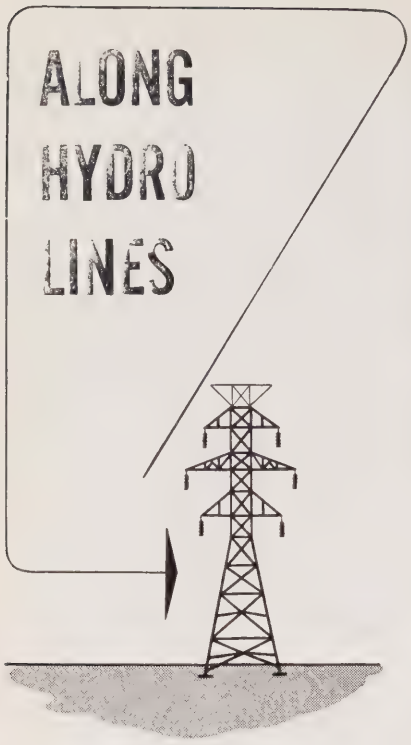
The 88-year-old utility executive, as General Manager of Woodstock P.U.C. from 1901 to 1941, witnessed the creation of Ontario Hydro in 1906 and the signing of the first power contract between the Commission and the City of Woodstock in 1908. Since his retirement, Mr. Archibald has been gratified to witness the changeover from 25-cycle to 60-cycle power in Ontario, a change he strongly advocated many years ago. A former A.M.E.U. President, he was presented with an honorary membership by that organization in 1953.



BEAUTY QUEENS AT NIAGARA – Ontario Hydro's floral clock at Niagara Falls forms a charming background for five charming girls, all beauty queens in their own right. From left to right are: Miss Huguette Nantel, Montreal, Miss Congeniality in this year's Miss Canada contest; Miss Margaret Ann Schnell, Miss Saskatchewan Wheat Queen; Miss Danica d'Hondt, Vancouver, Miss Canada herself; Miss Billy Hatter, Miss Niagara; and Miss Heather Sigurdson, Miss Manitoba. Miss Sigurdson and Miss Schnell placed second and third respectively in the Miss Canada contest.



FAREWELL DINNER – Members of Stratford P.U.C. recently honored Edward A. Washburn (right), who relinquished his position as General Manager of Stratford P.U.C. to take over a similar post at Burlington. Standing, left to right, are Chairman A. David Simpson, Commissioner A. E. MacIntyre and Mr. Washburn. Mrs. Washburn holds the bouquet of roses presented to her by the Commission, which honored Mr. Washburn with the presentation of a patio set. Staff colleagues presented him with a travelling bag and desk set.



Hydro Contribution Helps School Extension

Ontario Hydro is contributing $5,000 toward the cost of two additional classrooms at the five-room Iron Bridge Public School. The local school board will pay the remaining $25,000.

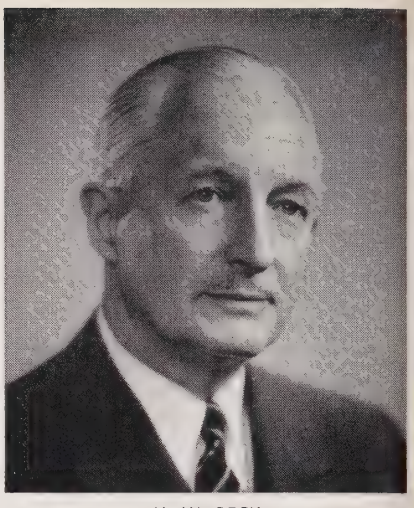
The new classrooms will serve a two-fold purpose. Initially they will help to accommodate some 60 children of Hydro employees engaged in the construction of the Commission's new 38,000-kilowatt power development at Red Rock Falls, just four miles from the school.

When the three-year project is completed, within the next three years, the extra facilities will be required to meet a normal anticipated increase in students.

Ontario Hydro had considered building a temporary school at its newly started Red Rock Falls project, but it was decided that assisting expansion of the Iron Bridge School would result in better separation of grades, and, at the same time, would be a permanent contribution toward the development of the community.



W. C. CUNNINGHAM



H. W. BECK

W. C. CUNNINGHAM NAMED DIRECTOR OF SUPPLY

W. C. Cunningham has been named to succeed Horace W. Beck as Ontario Hydro's Director of Supply. Mr. Beck, who retired from this position on September 1 this year, will continue studies, in which he has been engaged, relating to purchasing and inventory management policy.

Mr. Cunningham, was born in Newmarket, Ontario, and joined Ontario Hydro's Purchasing Department in 1937. In 1948 he was appointed Assistant Purchasing Agent and in 1951 became Purchasing Agent.

Mr. Cunningham's services were loaned to the Commission's Organization Services Division, where he served for one year as Organization Planning Officer. In May, 1956, he returned to the Supply Division as Administrative Assistant to the Director, being appointed Assistant Director of Supply in August, 1957.

A member of the Canadian Association of Purchasing Agents, Mr. Cunningham is also identified with the Public Utilities Buyers Group of the National Association in the United States. In addition, he is a member of the Purchasing Committee of the Canadian Electrical Association.

Mr. Beck, who was born in Montreal, was educated at Upper Canada College, Toronto, and Royal Military College, Kingston. Work with the Commission during summer vacations started him on his Hydro career. He continued in this capacity until 1914 when he joined the Royal Canadian Horse Artillery, serving in France.

In 1919, Mr. Beck joined the Railway Department of Hydro, and was transferred to the Purchasing Department in 1922. He became Assistant Purchasing Agent in 1930 and Purchasing Agent in 1947. A year later he was appointed Director of Supply.

Orillia Finances Appliances and Wiring

Orillia Water, Light and Power Commission has taken a decisive step aimed at promoting the sale of electrical appliances and services by financing home builders to buy on the instalment plan.

Under the new scheme a home owner who wishes to install extra wiring or purchase electric water heaters or ranges, pays 10 per cent down and the balance over a two-year period at five per cent interest, while the contractor or appliance dealer is paid immediately by the Orillia utility.

If the purchaser defaults on his payments, the commission may disconnect the service. In addition, the owner insures his property against loss.

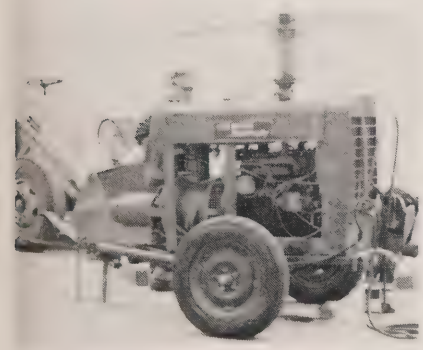
Changeover Program Ends In Northeastern Ontario

Frequency standardization operations in its Northeastern Region was completed recently by Ontario Hydro, exactly on schedule.

Final 25-cycle community to have the frequency changed to 60 cycles was a colony of employees of Hydro itself, located at Lower Sturgeon Generating Station about 30 miles from Timmins. Standardization of 25-cycle areas in Hydro's Northeastern Region began in the Copper Cliff district on February 10 this year. Since then, more than 100,000 pieces of electrical equipment for some 20,000 domestic, commercial and industrial customers have been changed over for 60-cycle operation.

Major Hydro Contract Awarded Hamilton Firm

Ontario Hydro has announced the award of a major contract to the Canadian Westinghouse Company, Limited, Hamilton, for two giant power transformers. The units, largest ever built in Canada, will be installed at Ontario Hydro's new 1,800,000-kilowatt Lakeview Generating Station (thermal electric) near Toronto, which is scheduled for completion by the "mid-sixties."



CO-OPERATION PLUS

Friendly relations between two rival agencies were manifested at Penetang, Ont. recently when a contracting firm used the parking lot at Ontario Hydro's Penetang Operating Area office, to store mobile equipment. Several of the machines engaged in laying natural gas mains suddenly and mysteriously sprouted "Live Better Electrically" wings.

CALENDAR OF EVENTS

A FULL schedule of courses, conferences and meetings has been announced by several organizations associated with the electrical utility field. The following events will be of particular interest to readers of *Ontario Hydro News.*

1958

Oct. 22-	A.M.E.U. "Travelling Circus," Windsor;
Oct. 23-	A.M.E.U. "Travelling Circus," London;
Oct. 23-	Official opening Ajax H.E.C. office;
Oct. 29-	A.M.E.U. Georgian Bay Fall Meeting, Hanover;
Nov. 5-	O.M.E.A. District 8, Harrow;
Nov. 7-8-	International Association of Electrical Inspectors - Ontario Chapter, Toronto, Park Plaza Hotel;
Nov. 10-11-	Institute of Electric Space Heating, Toronto;
Nov. 12-	O.M.E.A. District 4, Toronto;
Nov. 18-	Ontario Hydro Data Processing "In Service" Ceremony, Toronto;
Nov. ??-	A.M.E.U. "Travelling Circus," Toronto;

1959

Jan. 26-29-	C.E.A. Chateau Frontenac, Quebec;
Feb. 1-6-	A.I.E.E. General Meeting, New York;
Mar. 15-18-	O.M.E.A.-A.M.E.U. 50th Annual Meeting, Royal York Hotel, Toronto;
May 3-6-	Canadian Section A.W.W.A., Montreal;
July 2-3-4-	A.M.E.U. Summer Technical Conference, Bigwin Inn, Ont.

(Courtesy of A.M.E.U.)

Present Churches to Reservation

One of Ontario Hydro's more unusual undertakings is the construction of two churches — one Roman Catholic and one Anglican — on the Islington Indian Reservation.

These churches are to be presented to the Reservation, located near Hydro's new generating stations at Whitedog Falls on the Winnipeg River and Caribou Falls, on the English River, north of Kenora, Ont. These churches are being presented as a mark of appreciation of the co-operation of the Reservation and the services rendered by the Lake of the Woods Mission and the Diocese of Keewatin in ministering to the spiritual needs of Hydro staff at each project.

Volunteers have cleared two, one-acre areas in the Reservation for construction of the churches, which were designed by Hydro staff representatives. The two 24-by-36-foot buildings will be built from material salvaged from construction operations at Whitedog and Caribou.

Hanover Subsidizes 100-Ampere Services

Hanover householders modernizing their electrical services will now be subsidized to the extent of $25.

This new policy adopted recently by Hanover P.U.C. will provide for payment to householders with older services changing from a two-wire to a three-wire, 100-ampere service. Customers with meters inside their dwellings, who install a 100-ampere service with an outside meter, will also receive the $25 grant.

New Transformer Station for Collingwood-Stayner Area

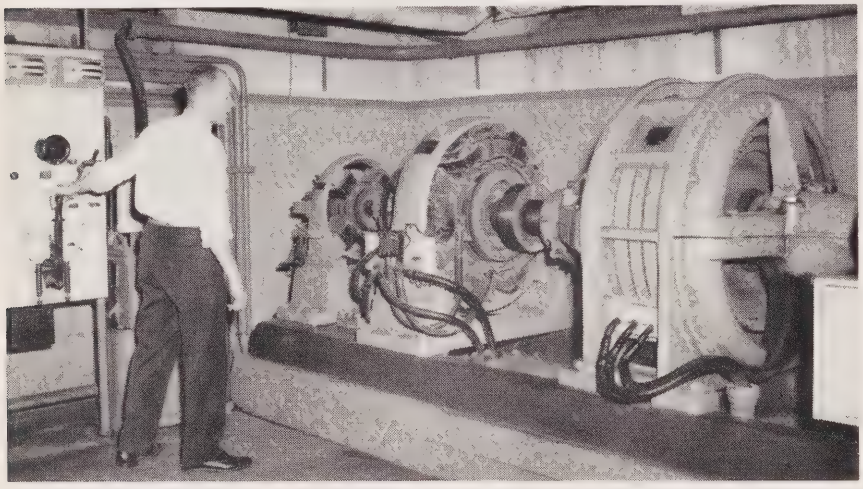
A new 115,000/44,000-volt transformer station, designed to provide greater security of service in the Collingwood-Stayner area, is to be built by Ontario Hydro, about one mile west of Stayner.

The 50,000-kva station will improve voltage conditions in the area and at the same time will relieve the load on the Barrie Transformer Station. It is anticipated that total demands for electric energy in this area, which includes the municipalities of Collingwood, Stayner, Creemore and Wasaga Beach, will increase by some 20 per cent over the next two years.

Construction work on the new station is scheduled to start in the fall of 1959. It is expected the station will be placed in operation by May 1, 1960. The estimated total cost of the project of some $800,000 includes construction of new transmission lines required to connect the station with the existing facilities.

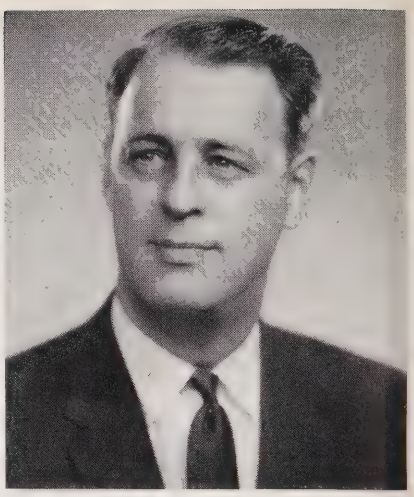
Sudbury Sets New Water Heater Rates

Sudbury Hydro-Electric Commission has announced new rates for flat-rate electric water heaters, involving reductions varying from three to 25 per cent. Some samples of the new net monthly rates, with previous rates in brackets, are: 600-watt heater, $2.20 ($2.42); 1,000-watt heater, $2.96 (3.97); 1,500-watt heater, $4.44 ($5.91); 2,000-watt heater, $5.92 ($7.84).



FINAL SHUTDOWN

ANOTHER long-service Hydro veteran — a 100-horsepower motor-generator set installed at Ontario Hydro's Research Division laboratory on Strachan Avenue, Toronto, 39 years ago — recently went into retirement. T. R. Lang, who operated the unit for 35 years, is shown as he performed the final shutdown of the three-phase, four-unit installation which first energized the transmission lines between Leaside and Strachan Avenue Transformer Stations. Operated continuously for the past 10 years, instead of the working-hour periods of earlier years, the 25-cycle unit is being replaced by a 60-cycle counterpart as one phase of frequency standardization work at the Commission's laboratory. But during its four decades of operation, the set was used in many important tests. The 75-kva generator, in the early days of 25-cycle power, was used to supply power throughout the Research Division for special tests on various equipment, such as motors and transformers. Since controls on the generator could raise the output voltage to any specified value up to 2,300 volts, it has been possible to test large 3-phase induction motors. The 50-kilowatt direct current generator, another component of the set, was used for various kinds of d-c tests.



R. M. THOMAS

R. M. THOMAS NAMED ACTING TREASURER

RONALD M. Thomas has been named Acting Treasurer succeeding F. R. Brebner, who has rejoined the firm of Harris and Partners Ltd. after 10 years as Treasurer of Ontario Hydro.

Mr. Thomas, who is 36 years old, was born and educated in Montreal. Following service in the Royal Canadian Navy from 1942 to 1945, he majored in Economics and Accounting at McGill University and graduated with a Bachelor of Commerce degree in 1949. He majored in finance at the Wharton School of Finance and Commerce, University of Pennsylvania, and graduated with the degree of Master of Business Administration in 1950.



F. R. BREBNER

At that time, Mr. Thomas joined the Aluminum Ltd. Group of Companies and worked in various financial capacities, principally in financial planning for the Kitimat project, and as financial surveillant over a group of Latin-American subsidiaries. Mr. Thomas was certified as a Chartered Accountant in 1953 by the Quebec Institute of Chartered Accountants. He joined Ontario Hydro as Assistant Treasurer in 1955.

North Bay Honors Former Chairmen

Four North Bay Hydro Commission substations have been renamed and appropriate bronze plaques erected in honor of previous chairmen. Previously they were designated numerically.

Station No. 1 is now known as the Norman J. McCubbin Station, in honor of the first chairman of the commission. Bruce McCubbin, his son, is the present North Bay Chairman.

The name of the second chairman, D. Leo Regimbal, has been given to Station No. 2, while the name of the commission's third chairman and North Bay's present Mayor Merle Dickerson is the new designation for Station No. 3. Station No. 4 has been re-named the George W. Deegan Station, in honor of the Commission's fourth Chairman.

Toronto Hydro's Chief Engineer Dies

Chief Engineer of the Toronto Hydro-Electric System, H. Boyd Little, 65, died recently at Toronto Western Hospital following a heart attack.

Mr. Little, who had been with Toronto Hydro for 38 years, joined the system after graduation from the University of Toronto in 1920. After being associated with the Station Construction Department and Executive Department, he was appointed station operation engineer in 1942. The deceased became assistant chief engineer 11 years ago and in 1952 was named Chief Engineer.

In 1915, Mr. Little enlisted with the Eaton Machine Gun Battery, won his commission in England with the Royal Field Artillery and served in France and Belgium with the 16th Division of Artillery.

Named Manager

O. S. Luney, Manager of Ontario Hydro's Eastern Region, Ottawa, has announced the appointment of G. L. Davidson as Manager of Merrickville R.O.A.



G. F. DEAN

ON I.E.S. EXECUTIVE

G. Frank Dean, Supervising Engineer, Lighting Services, Toronto Hydro-Electric System, has been elected Treasurer of the Illuminating Engineering Society.

The I.E.S. is the only professional organization of lighting engineers, designers and related specialists, and has 9,000 members throughout Canada and the United States. The new panel of officers was installed at the society's recent five-day annual technical conference in Toronto. Mr. Dean was Vice-Chairman and Treasurer of the conference.

Cobourg Adjusts Rate Schedule

Cobourg P.U.C. has introduced a new schedule of electric rates, involving an estimated reduction in utility revenue of $40,000 a year. The new rates announced by Chairman Robert T. Love, are in accordance with the municipal resale rate structures adopted by some 150 municipal utilities and will result in more equitable billing of Cobourg customers. Mr. Love became chairman when P. G. Thompson retired recently for reasons of health.

Stouffville Approves New Street Lights

Stouffville council at a recent joint meeting with utility representatives approved installation of new mercury-vapor street lights in new subdivisions and eventually in other sections of the community.

Stouffville P.U.C. has acquired a new property as a possible site for a new office building.

Loads and Capacity Increase at London

London's downtown network power load increased 11.6 per cent in July over the peak a year before. P.U.C. Assistant General Manager A. L. Furanna recently explained that the utility had been able to handle this increase by adding some 2,200 kilowatts to its system capacity.

Mr. Furanna attributed much of the increase in the load, which is roughly double the overall rate for London, to more extensive use of air-conditioning equipment. Another 700 kilowatts capacity is also being added by the installation of two new transformers.

Preston P.U.C. Buys Service Centre Site

Preston's market building changed hands for the last time when Preston P.U.C. recently purchased the historic structure from the municipal corporation.

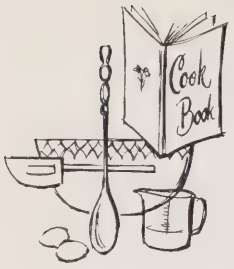
The commission acquired the old building and several surrounding lots for $3,000. Its demolition and the construction of a new garage are in the planning stage, but for the present, the building will be used for storage purposes.

Windsor Man Assumes Ingersoll Post

C. V. MacLachlan has been appointed Manager of Ingersoll P.U.C. succeeding Douglas M. Seath, who has taken over as General Manager of Stratford P.U.C. Mr. MacLachlan, has been Assistant Superintendent of the Hydro Division of Windsor Utilities Commission for the past 18 months. W. S. Mullin, Assistant Engineer with the Windsor Commission has assumed Mr. MacLachlan's duties.

Oldest Member

Robert Snowball, Superintendent of Oakville P.U.C. for 40 years, and oldest member of Oakville volunteer fire brigade, died recently in his 67th year.



LET'S CHAT



with Lois Hurst of Ontario Hydro's Anne Allan Homemakers' Service

"I now revel in the bliss of an electric kitchen and electricity throughout the house generally. My home life, therefore, is much more easy, agreeable and healthful, for both my family and my maids."

So marvelled Mrs. Maud Lancaster in a slim little volume published in 1914, called "Electric Cooking, Heating and Cleaning."

Little could Mrs. Lancaster visualize that, 44 years later, an easy, agreeable and healthful home life would be possible without maids; that electric machines with automatic controls would become the servants.

At Thanksgiving time, when families gather together, let us pause to think of and be thankful for the comfortable lives we lead. Even the most modest home is filled with conveniences far beyond the dreams of four decades ago.

Casual and efficient describes today's pattern of family living. Automation at the touch of a finger saves time and energy in household chores. Automatic electric equipment takes over the washing and drying of clothes, the baking of cakes, the roasting of meat, thus leaving the housewife free for other activities. When mother works outside the home, the rest of the family is more willing to put supper on to cook, if the cooking is automatic.

Naturally the working mother wants to spend as much time as possible with her family. Now she may take the cooking right into the room where the rest of the family happens to be sitting. Portable electric frypans, saucepans, rotisserie ovens and so on, can be used indoors or outdoors, wherever there is an electric outlet.

Thermostatic controls for cooking used to be found only in ovens, but now they are installed in surface elements and all types of small appliances. Cooking at the right temperature is foolproof. Stews simmer gently, controls set at 200°, either on top of a range or in an electric saucepan. Potatoes bake at 400°, either in an oven or in a covered electric frying pan.



Courtesy General Foods Ltd.

Tradition decrees that the Thanksgiving table groan with festive fare, but modern electric cooking makes long hours in the kitchen unnecessary. A simply prepared meal with a gourmet twist becomes a banquet.

Hot Spiced Cider — Cheese Straws
Roast Turkey — Mushroom Stuffing
Cranberry and Raisin Sauce
Parsley Mashed Potatoes
Glazed Carrots
Cucumber Slices and Onion Rings in Sour Cream
Pumpkin Pie with Hazelnut Crust
Candied Orange Peel Coffee

Pumpkin Pie with Hazelnut Crust

Pumpkin pie is a sure success by this quick and easy recipe which leaves the oven free for roasting the turkey. Just prepare the crust ahead of time.

Crust

1½ c. finely ground hazelnuts (filberts)
¼ c. granulated sugar.

Mix together and press firmly into the bottom and sides of a greased 8-inch pie plate. Bake at 375° until delicately browned, about 12 to 15 minutes.

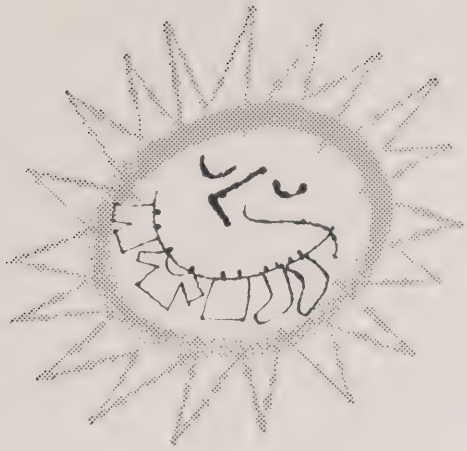
Filling

1 package butterscotch pudding (not "instant").
1½ c. hot milk.

Bring to a boil on low heat, stirring constantly. Add:

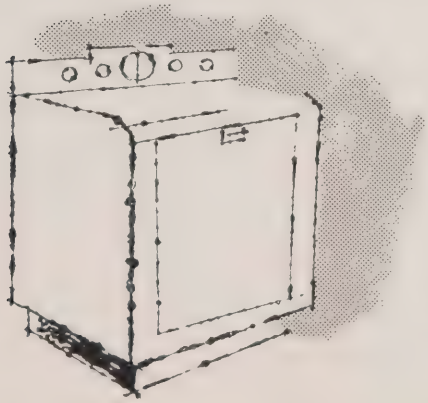
2 tbsp. butter
1½ c. canned pumpkin
¼ c. sugar, ½ tsp. salt, ½ tsp. cinnamon, ½ tsp. ginger, ½ tsp. nutmeg, ¼ tsp. cloves.

Bring to a boil again. Cool slightly and pour into the baked nut crust before the mixture sets. Cool thoroughly. Top with whipped cream.



Question: how many perfect drying days in a year?

Answer: 365 — with an electric dryer



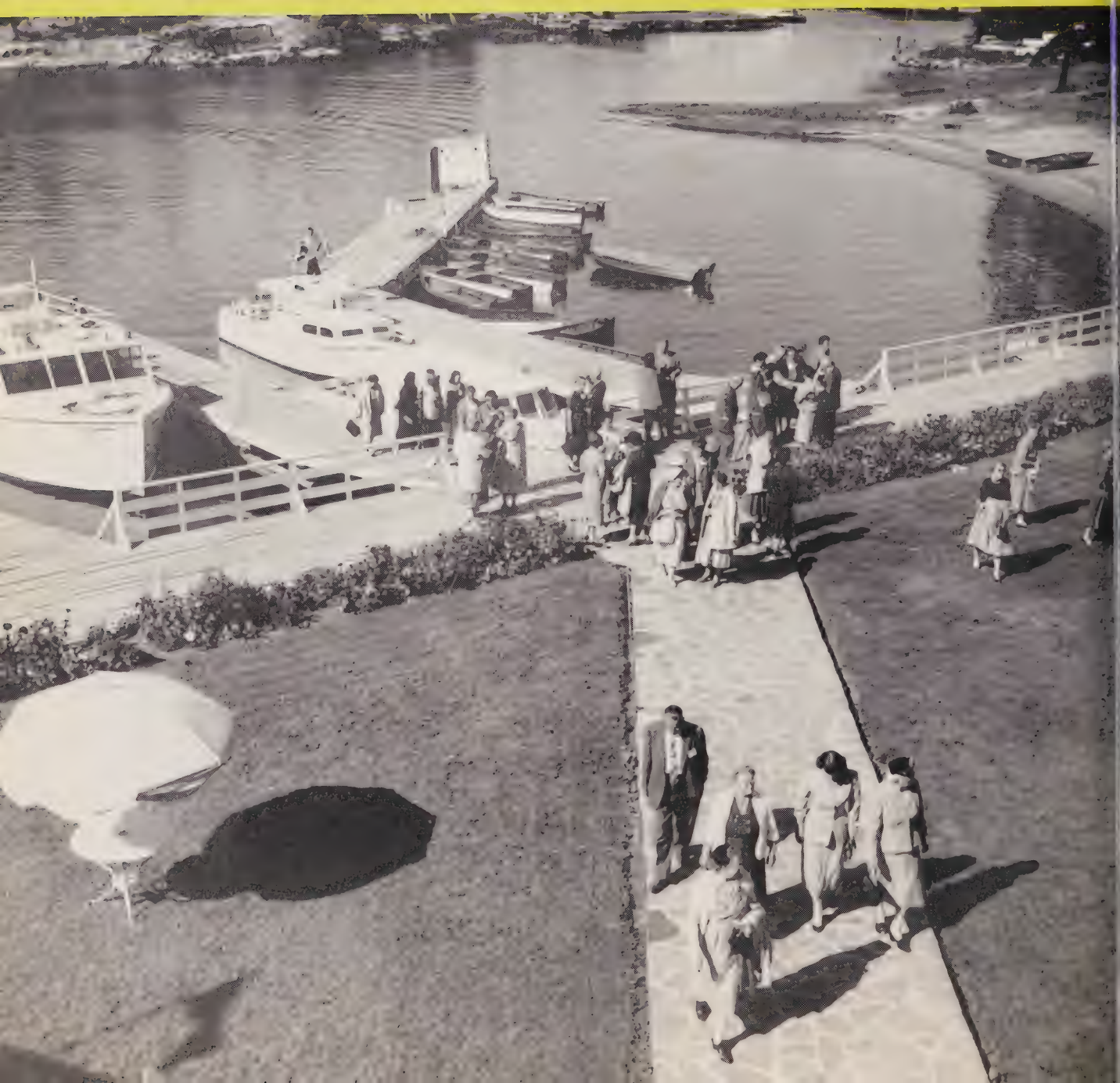
Any day you choose is a good drying day when you have an automatic electric dryer working for you! Its gentle heat gets clothes sunshine fresh . . . fluffier, too!

live better... ELECTRICALLY

the safe, clean, modern way!

(Sample advertisement — mats available to the associated municipal utilities for use in local "Live Better Electrically" campaigns.)

WHILE summer is officially over, there is confidence that Ontario's usually pleasant autumn climate will provide many more balmy days. And as proof the accompanying photograph shows delegates at the September annual meeting of the Georgian Bay Municipal Electric Association returning from a cruise through the 30,000 Islands. This year's gathering was held at Honey Harbour in the heart of this picturesque section of the province.



TARIO HYDRO
NEWS
NOVEMBER, 1958



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ONTARIO HYDRO NEWS

NOVEMBER, 1958 VOL. 45, NO. 11

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COVER "SHOTS"

That isn't a minaret in our front cover photograph this month, it's the new surge tank at Hydro's Silver Falls project. Hydro photographer Mern. Ritz also recorded the back cover view of the Bailey Bridge while visiting this northern Ontario development recently (see "Power Tunnel" page 2).

A FIELD WITHOUT FENCES

MEMBERS of the A.M.E.U. Executive and those who serve on the association's Engineering Section Board have again demonstrated a keen appreciation of the technical problems and the new challenges confronting Ontario's electrical utilities today. The Institute of Electrical Space Heating held in Toronto earlier this month was significant in many respects. There are reasonable grounds for the assumption that it was the first of its type ever held in Ontario. But quite apart from this historical aspect, the Institute presented refreshing evidence that the A.M.E.U. — supported and encouraged as it is by the O.M.E.A. and Ontario Hydro — is in an advantageous position to give vigorous leadership and guidance to the province's electrical utilities in effectively meeting competition from other sources of energy such as natural gas.

Ontario Hydro's decision, a few months ago, to remove the restrictive service charge of $4 a kilowatt a month on electrical space heating systems, and to establish a new rate schedule for this type of electrical service has presented the Commission and the associated municipal systems with a fresh opportunity for building up energy sales.

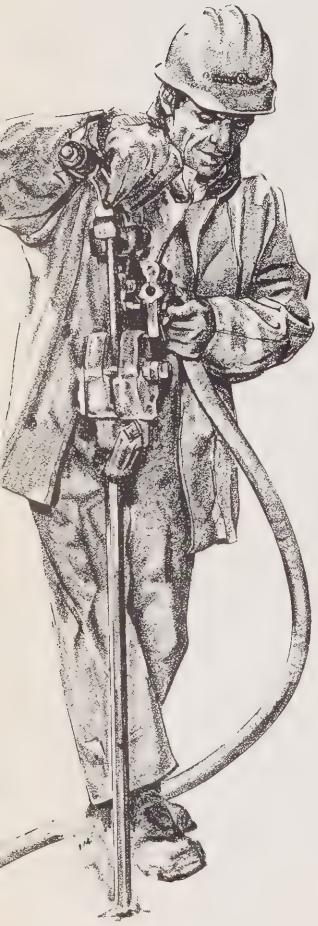
But electrical space heating, as A.M.E.U. President J. A. Williamson pointed out in a recent letter to association members, is a technical field "in which very few people in the province are well-versed." Thus the Institute brought together an impressive array of experts to give all utilities basic technical data and instruction on all phases of this comparatively new electrical application.

It is apparent that utilities who are desirous of successfully promoting the use of electricity in domestic heating must first convince architects, as well as building and electrical contractors, of the possible savings in construction before it will come into general use. Then, too, they must make the customers — particularly those who are building new homes — aware of the superior qualities of electrical heating which help to offset its slightly higher operating cost. This should not be extremely difficult in view of the fact that most people — whenever possible — buy the things that save labor and increase comfort. It's true that oats are cheaper than gasoline and horses are cheaper than automobiles, but there are few Canadians who still prefer the older form of transportation.

Armed with this latest technical knowledge, utility representatives are now, we are confident, in a much stronger position to promote the theme of "Live Better Electrically" in an effective and practical manner. They can do so, too, with the fullest assurance that they are selling a safe, clean and modern source of energy and one whose potential for future applications is almost limitless.



LARGEST of several cataracts and rapids in a winding, five-mile section of the Kaministikwia River, 30 miles northwest of the Lakehead, picturesque Silver Falls has given its name to an Ontario Hydro project, which will come into service next year (see page 2).





POWER TU



SOME 57,000 cubic yards of earth and rock have been excavated in building the tunnel intake structure at Dog Lake.

K is advancing rapidly on all phases of the Silver Falls project, ling the intake structure near the shore of Dog Lake (A). dicates the location of Silver Falls. The survey line for the l is visible in this photo, which also shows the sites of the tank (C), the powerhouse (D) and a portion of the colony (E).

by Peter Maitland

Featuring a Canadian "first" in excavation, Silver Falls project is ahead of schedule

With excavation of a two-mile long tunnel deep into the heart of a granite hill completed, Ontario Hydro's Silver Falls power project is now well past the half-way mark and moving ahead of schedule.

During the first 13 months of construction, this $16,500,000 project, situated 30 miles northwest of the Lakehead, looked more like a mining development than a hydro-electric construction project. For hardrock miners were busy burrowing into a granite ridge between Dog Lake and Little Dog Lake – digging a subterranean power conduit, which, by the fall of 1959, will be channelling water into the penstock of the 45,500-kilowatt generating station.

NNEL

Silver Falls, from which the project takes its name, is the largest of several cataracts and rapids in a winding, five-mile section of the Kaministikwia River. This river has its source in Dog Lake and empties into Lake Superior. To take the fullest possible advantage of a 350-foot fall in this section between Dog Lake and Little Dog Lake, the tunnel has been bored through the granite hill separating the lakes to by-pass the river. Thus water will be diverted from Dog Lake through a 400-foot long, trapezoidal-shaped intake channel (with a finished base width of 51 feet), down a vertical intake shaft to the tunnel and through a penstock to the turbine in the powerhouse on the shore of Little Dog Lake.

Although excavation of the tunnel, intake channel and shaft, and the 204-foot surge shaft has been the most spectacular feature of the project, Construction Manager H. A. Jackson is responsible for the supervision of a wide variety of integrated construction jobs: the building of the powerhouse; channel improvement downstream from the site; construction of 10½ miles of access road and the improvement of eight miles of existing road, and the rehabilitation of two rock-fill dams more than 50 years old.

Other key members of the Silver Falls "team" are: Resident Engineer L. H. Smuck, Project Engineer R. A. Forrester, Project Design Engineer L. A. Leeyus and Project Electrical Engineer J. T. Cornish.

Excavation for the tunnel started in September last year. The average daily advance, including setting-up time and the slow rate of progress during its initial stages, was approximately 38 feet a day. Working 'round-the-clock, six days a week, each shift completed a cycle of drilling, blasting and mucking out the rock rubble, together with the laying of rail track, and extending ventilation pipe, air, water and power lines.

Ahead of Schedule

On August 16 this year, two weeks ahead of schedule, mining crews reached the 10,400-foot mark in the tunnel. Once the 280-foot intake shaft has been raised from the tunnel floor to the surface, the main concreting operation in the tunnel will be started. The concreting of the tunnel to its finished diameter of 14½ feet is scheduled for completion in March, 1959.

The main concreting operations are expected to entail the pouring of some 40,000 cubic yards of concrete. Rock from the tunnel will be used for part of the aggregate, and the project's crusher will be required to process some 120,000 tons of combined pit and tunnel aggregate. The semi-automatic mixing plant at Silver Falls can produce 80 cubic yards of concrete an hour. Bulk cement, shipped by lake freighter to Fort William from Clarkson, Ontario, is stored in a warehouse and silo at the Lakehead. A silo, with a capacity of 14,200 bags, has been built at the site and the cement is transported from the Lakehead in tractor-trailer units.

General Construction Superintendent P. R. Stratton says the work schedule calls for the completion of concreting by March next year. The pouring operation will go on 24 hours a day, six days a week.

Excavation for the powerhouse and penstock was finished during August, while the building of formwork for the powerhouse substructure and construction of a triple-span Bailey bridge has been underway since that time. The 62,000-horsepower turbine will have a steel scroll case and a through-type spherical valve and steel penstock, which extends 300 feet into the tunnel. Installation of the draft tube and valve chamber, and excavation of most of the tailrace area are scheduled for completion before freeze-up.

Turbine Erection

Actual erection of the turbine began during October, while the present schedule calls for a start on installation of the generator in April next year.

(Continued on page 4)

Concreting for the headworks and transition section at the intake on Dog Lake was completed in September to coincide with the "wind-up" of excavation for the intake shaft, permitting the placing of stop-logs in emergency checks to provide added protection against accidental flooding of the tunnel.

The diversion of the Kaministikwia River into a new channel at Crooked Rapids downstream from the powerhouse site is now virtually complete. Involving the removal of some 14,000 cubic yards of rock, this work will lower the tailwater level at the Silver Falls powerhouse.

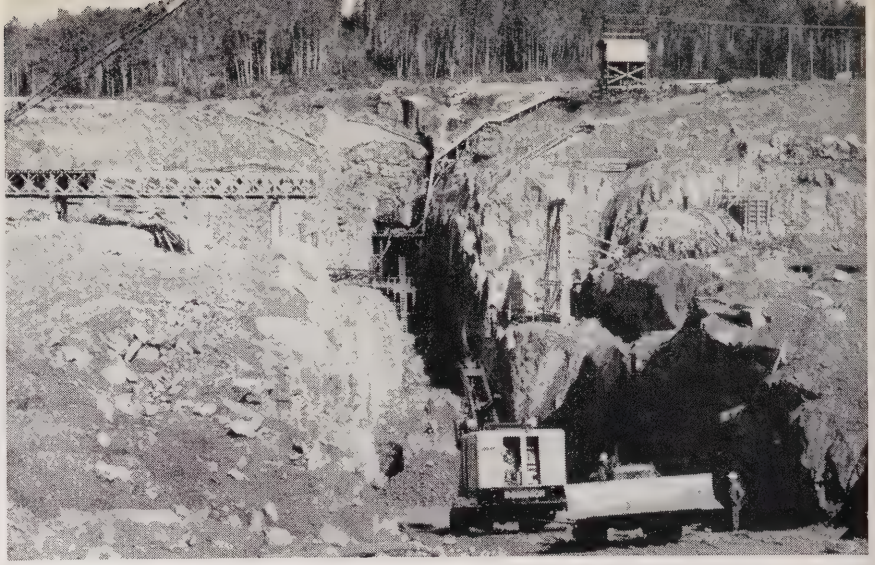
Further improvement, entailing the dredging of 60,000 cubic yards of overburden, will be undertaken next spring. The entire river improvement program is designed to increase the plant's operating head by six feet to a total of 338 feet.

Road building included construction of an access road to the control dams at Dog Lake. The dams, built around the turn of the century to increase the storage reservoir for Kakabeka Falls Generating Station, 20 miles downstream from Silver Falls, will be rehabilitated next summer.

One of the most impressive features of the finished project will be the 1,250,000-gallon surge tank, rising 190 feet from the surface of the ground 800 feet back from the powerhouse. The surge tank has two functions. Its primary job is to act as a safety valve and to protect the tunnel, penstock, straight flow valve and turbine water passage gates from the excessive pressure exerted by the two-mile column of water in the tunnel should an emergency necessitate immediate shutdown of the turbine. Its second function is to provide a ready supply of water to take care of sudden increases in electrical demand on the generator.

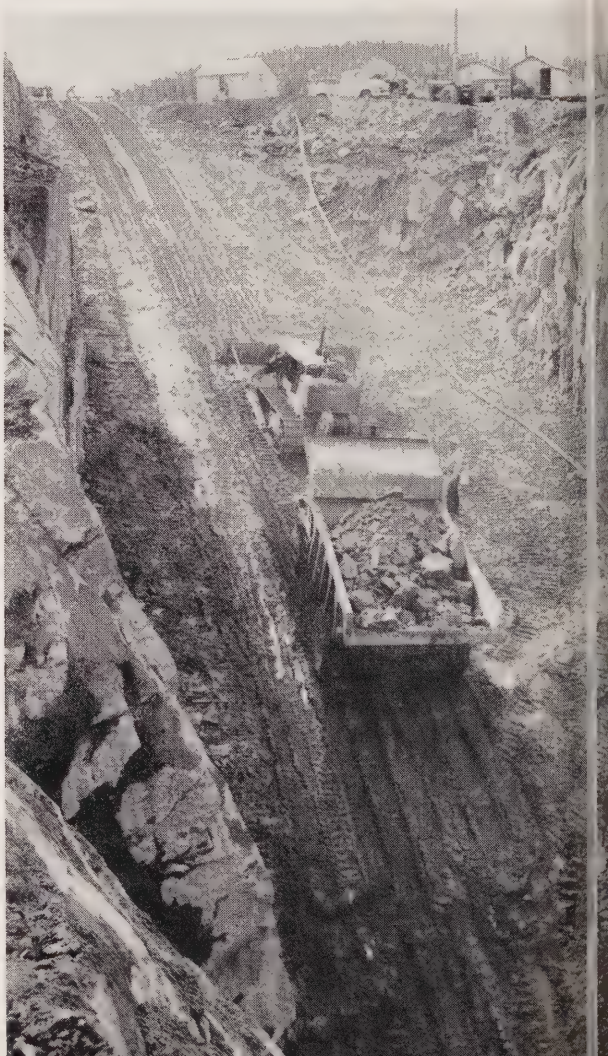
New Technique

To sink the surge tank and intake shafts deep into the ground, Hydro engineers have successfully adapted a new Swedish-developed technique to Canadian requirements.



WHEN COMPLETED, the Bailey Bridge structure (left centre) will permit easy access to the powerhouse work area. The rock cut leads to the downstream portal of the 10,400-foot-long tunnel. The surge tank located on the ridge above the tunnel entrance is 204 feet high.

THIS rock-laden truck is being helped up the steep grade from the tunnel portal by a bulldozer and winch. During tunnel-boring operations, hardrock miners worked 'round the clock six days a week to finish this phase of the project on schedule.





COMPRESSED AIR drills engaged in excavating for the powerhouse foundations. Construction of the single-unit Silver Falls plant will entail the placing of 9,250 cubic yards of concrete.

During the planning stages, Mr. Jackson and Mr. Stratton, in consultation with project engineers, decided to try a new method of drilling, which had been developed by the State Power Board of Sweden in the construction of hydraulic generating stations. Called the "drilling-platform method," it consists of three phases: the drilling of a cable hole from the surface to the tunnel, the excavation upward of a pilot raise from the tunnel by means of a drill cage, and finally, the enlarging of the raise to the required diameter.

"To the best of our knowledge," said Mr. Stratton, "it is the first time the method has been used in Canada.

"The actual drilling of the six-foot pilot raise (for the surge shaft) was completed in less than two weeks, or in about one-third of the time required by the conventional raise-stope method."

Bob Cunningham, who spent two years tunnelling in the fortress of Gibraltar during the Second World War, directed the initial stages of excavation. Now night superintendent, he was a key figure in the successful application of the drilling platform technique at Silver Falls.

On completion of the slashing-down operation to the full 17½-foot diameter of the shaft, cement was sprayed over the first 90 feet of the shaft as a precaution against rock cracking away from the walls. The lower 100 feet were concreted from the bottom upward in 10-foot lifts, using a custom-made steel form which was re-used in the 280-foot intake shaft.

Installation of a 90-foot liner section and the erection of the surge tank itself is scheduled for completion in late November. Concreting operations at the intake shaft, which is being excavated by the same method, are progressing on a similar timetable.

Speaking generally about the tunnel operation, Mr. Stratton emphasized that tunnelling, while usually described in terms of drill, blast and muck, also involves personnel whose duties include the provision of tools and services.

"A high percentage are skilled craftsmen who have shown their versatility by very successfully adapting themselves to the high-pressure demands of the tunnel . . . the key to this success was preventive maintenance and 'round-the-clock repair facilities.

"All things considered, these tradesmen (electricians, mechanics and other trades) are provided with probably the best workshop equipment and accommodation that has

(Continued on page 24)

Thunder Bay M.E.A. delegates hear graphic description of growth in power demands and economic activity in northwestern Ontario



BY LEAPS AND BOUNDS

WHATEVER problems may be posed by the geography of northwestern Ontario, lack of scenery is not one of them, and wherever the annual meeting of O.M.E.A. District No. 3 may be held, the setting is bound to be superlative. This year Kenora was host, and the delegates were treated to a first-hand view of its attractions during a four-hour cruise and buffet supper on beautiful Lake of the Woods.

The good work and enthusiasm of this relatively isolated district association has long been recognized in other parts of the province, and for several years a group of leading public utility representatives from southern Ontario have attended District No. 3 meetings to promote understanding, goodwill and liaison. The presentation of saucer-sized badges to members of this group with 10 or more northern trips to their credit was another social highlight of this year's conference.

The four recipients of these quasi-serious awards were: W. Ross Strike, Q.C., Hydro's First Vice-Chairman; H. Allan Howard, Thorold; J. E. Teckoe, Windsor, and R. S. Reynolds, Chatham. A. W. H. Taber, of Fort William, made the presentations. The "southern" contingent made the trip by boat from Port McNicoll to Fort William. After an inspection of the Commission's new Silver Falls development, some 30 miles northwest of the Lakehead (see page 2), they completed the trip to Kenora by rail.

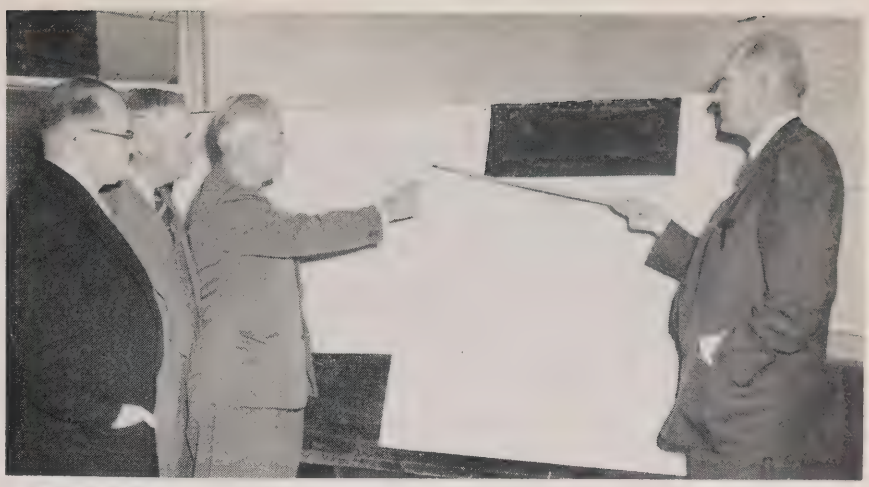
Following the executive meeting, delegates were guests of the Town of Kenora at a luncheon where they were welcomed by Mayor Peter Ratuski and by District 3 President, Mayor J. L. Skillen, of Dryden. Guest speaker was J. W. Sutcliffe, of Kenora, who described a recent holiday in Mexico and employed colored slides to effectively contrast this semi-tropical land with the rugged beauty of northern Ontario.

At the first general business session, D. I. Nattress, Manager of Hydro's Northwestern Region, drew a graphic picture of the expansion of the Commission's Northwestern Division system to meet the surging power requirements experienced in this section of the province since the end of World War II. The speaker used graphs to illustrate the small margin of reserve between the dependable peak capacity of the system and the primary peak demand since 1945. He said the problem had been particularly acute during the last five or six years, due, chiefly, to major expansion in the pulp and paper industry and extensive iron ore developments. An actual shortage had been averted in 1957 by surplus power supplied through an interconnection with the neighboring system of The Manitoba Hydro-Electric Board.

Load growth in the Northwestern Region averaged 11.3 per cent per annum from December, 1951, to December, 1957, but Mr. Nattress forecast a slight levelling-off in this rate of increase in demand during the next six years. This, together with new sources of generation, would provide a reasonable margin of reserve for the first time since 1950 when the first two units were brought into service at Pine Portage. The surplus capacity would take care of load growth, and make it possible to remove certain older generating units from service for needed maintenance. The regional manager predicted that any further surplus power would find a ready market in Manitoba. He explained that normal operating procedure called for a reserve equal at least to the largest unit in the system. With the completion of the first unit

(Continued on page 8)

AN INTERESTING PROGRAM and a record registration account for the pleased expressions of 1957-58 President J. A. Skillen (left) and Secretary-Treasurer J. B. Leeney as they confer on the District 3 agenda.



HIGHLIGHTING this year's program was a report on the power resources of northwestern Ontario by Ontario Hydro's Regional Manager, D. I. Nattress (right), who was noted in an informal discussion with (left to right): C. R. Buss, Thorold; O.M.E.A. President Bert Merson and P. R. Locke, St. Thomas.



SOUTHERN ONTARIO delegates, who have attended 10 or more District 3 annual meetings, were presented with special badges by Arthur Taber, Fort William. From the left the "Thunder Bay Trippers" are: W. Ross Strike, Hydro's First Vice-Chairman; Mr. Taber, H. A. Howard, Thorold; J. E. Teckoe, Jr., Windsor, and R. S. Reynolds, Chatham.

TRAFFIC was heavy between the hotel headquarters and Kenora's municipal building as delegates travelled on foot between sessions. These northwestern delegates (left to right) are: J. B. Patterson, Kenora; C. C. Skinner, Schreiber; Don Grantham, Sioux Lookout, and H. A. Burleigh, Fort Frances.





THESE O.M.E.A. MEMBERS were chosen to guide the affairs of District 3 during the coming year. They are (left to right): Mayor Alex Hannah, Sioux Lookout; Gordon Carson, Fort William; W. A. Ferguson, Atikokan Township; President R. B. Chandler, Port Arthur; Mayor J. L. Skillen, Dryden, Immediate Past President; T. B. Leeney, Fort William, Secretary-Treasurer, and Reeve William D'Arcy, Schreiber Twp.

of the Thunder Bay thermal-electric plant at the Lakehead in 1961, the desirable reserve capacity of the Northwestern Division would be 100,000 kilowatts.

O.M.E.A.-A.M.E.U. Reports

Emphasizing that Ontario Hydro and the associated municipal utilities represented an investment of well over $2½ billion, O.M.E.A. President Bert Merson urged every delegate to accept a full share of the responsibility inherent in so great a trust. "Employing this vast public enterprise to the fullest possible advantage should be one of our primary objectives," the speaker said.

Mr. Merson also made reference to the fact that certain association members had been holding meetings outside the jurisdiction of the O.M.E.A. on matters that pertained to the responsibilities and functions of the association. "Special problems can be dealt with at special meetings," he said, "and action taken outside official circles is the surest way to destroy our association." He reminded the delegates that the 50th annual O.M.E.A.-A.M.E.U. meeting would be held in Toronto, March 15, 16 and 17, and appealed for a full representation from all parts of the province.

In reporting on behalf of the A.M.E.U., President J. A. Williamson reviewed the purpose of the travelling workshop, which, he said, is "geared to the technical level of the line superintendent and foreman." He volunteered the services of the workshop to the Northwestern Region, but he suggested that the arrangements would have to be handled by the O.M.E.A. since there was no regional A.M.E.U. organization in that region at the present time. Mr. Williamson also announced that the Summer Technical Conference would be held at Bigwin Inn in July, 1959.

Roy Beith, Manager of the Electrical Utilities Safety Association, explained that, as a result of a "disheartening rash of serious accidents in 1957," activities were now being concentrated at the foreman level. He provided the delegates with a comprehensive outline of the work being carried out. Ontario Hydro Commissioner Lt.-Col. A. A. Kennedy, speaking in place of C. B. C. Scott, Hydro's Assistant General Manager — Personnel, revealed that the Commission is now in a position to co-operate with local utilities in the matter of establishing proper procedures in negotiating contracts with employees, and would gladly provide assistance of this nature on request. P. R. Locke acquainted delegates with the present status of the Municipal Hydro-Electric Pension and Insurance Plan.

Public Relations

Speaking at the annual banquet, W. Ross Strike discussed public relations under the headings of salesmanship, staff training and customer relations. He particularly stressed the need for enlisting the aid of every staff member in the public relations program. "In this matter of PR," he said, "all we are doing is providing our employees with an outlet by which they can make a contribution to the well-being of the industry — and showing other people that this procedure is successful."

At the second business session, Harry Foy, Manager and Secretary-Treasurer of the Electric Service League of Ontario, said that expansion plans are underway which will increase the value of the League to all municipalities of the province. He drew attention to the increased tempo of natural gas promotion, and he suggested that the electrical industry should join forces with the oil heating interests to promote package sales of oil furnaces and electric water heating equipment.

An authority on underground electrical installations, A.M.E.U. President J. A. Williamson discussed the future of this development and its possible effect on many municipal utilities. He discussed the subject from the point of view of history, efficiency and economics. "It is my firm conviction," he said, "that the trend will be to underground in all utilities within the foreseeable future."

R. B. Chandler, Port Arthur, was elected President for 1958-59 while W. A. Ferguson, Atikokan Township, and E. G. Carson, Fort William, were named First and Second Vice-Presidents, respectively. Directors elected were William D'Arcy, Schreiber; Mayor Alex Hannah, Sioux Lookout, and R. W. L. Cousineau, Fort Frances. T. B. Leeney, Fort William, is the permanent Secretary-Treasurer. Delegates endorsed an invitation to hold the 1959 annual meeting at Sioux Lookout.

Concluding this year's meeting was an authoritative description of the vast iron ore resources of Northwestern Ontario by Neil Edmonstone, Vice-President and Secretary-Treasurer of Steep Rock Iron Mines Limited. He estimated that the region had a potential annual production of 42 million tons, but that the accessibility of outside markets would dictate its rate of development.

— by Donald Wright

INDUSTRIAL RELATIONS SERVICE OUTLINED

Ontario Hydro's plans to assist municipal utilities in the field of industrial relations were outlined at the annual convention of the Grand Valley Municipal Electric Association held at Palmerston recently.

Nearly 100 delegates heard C. B. C. Scott, Assistant General Manager — Personnel, Ontario Hydro, explain that the Commission would provide both an advisory service and training program for all utilities interested.

Under the advisory service, the Industrial Relations Division of Ontario Hydro will supply information on wage rates, fringe benefits, labor laws and contractual language for clauses and agreements. The division will also provide counsel on the negotiation and administration of contracts.

The training program will initially take the form of round-table discussions on labor relations between Commission industrial relations specialists and utility management representatives. Each discussion group will be limited to about 15 utility officials, who will be invited to attend three or four single-day sessions.

Ontario Hydro's introduction of these services follows quickly an official request for assistance from the O.M.E.A. Mr. Scott stated that it was natural that the local utilities should seek assistance, as the field of personnel and industrial relations

(Continued on page 10)



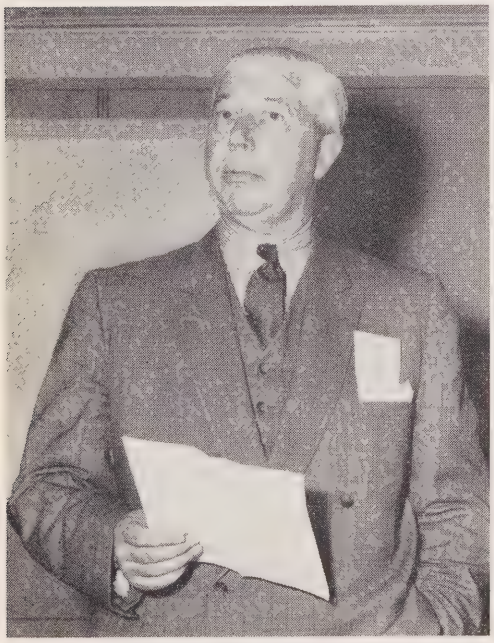
STILL TAKING an active interest in Hydro affairs after nearly 50 years' association, Harvey Hawke, Galt, Hon. Vice-President, Grand Valley M.E.A. (right), discusses power resources with Henri Teekman, Ontario Hydro.



LADIES attending the convention enjoyed a tour of the area while the male delegates were attending the business session. Cecil Forrester, Chairman, Palmerston P.U.C., who arranged the tour, sees them aboard the bus.



ANOTHER ELECTION OVER and G. H. Glover, St. Marys, retiring President (second from left), hands over the gavel to the new President, H. M. Scheifele, Waterloo. The 1958 Secretary-Treasurer, H. E. Dickinson, St. Marys (extreme left), and his successor, Ivan Bradley, Waterloo, are looking on.



ONTARIO HYDRO will institute an advisory service and training program in industrial relations for municipal utilities, C. B. C. Scott, Assistant General Manager — Personnel, announced while addressing delegates.

had become increasingly complicated, requiring the services of people with a background of experience in this field. Smaller utilities could not afford such experts, whereas Ontario Hydro had created a special division for the task.

"We certainly haven't all the answers — nobody has in this field," Mr. Scott said. "But we are very willing to make our services available to all the utility systems in Ontario. In so doing, we recognize that we, too, will gain from the joint effort of sharing our problems and experiences."

Other speakers at the convention were Bert Merson, O.M.E.A. President; J. A. Williamson, A.M.E.U. President; Roy Beith, Manager, Electrical Utilities Safety Association; P. R. Locke, Chairman, Municipal Hydro-Electric Pension and Insurance Committee; and, from Ontario Hydro, W. Ross Strike, First Vice-Chairman; Roy Harmer, Assistant Director, Consumer Service Division, and Henri Teekman, Planning Engineer, Generation and Transmission — Resources.

Of course, the convention was not all business. As usual, the Grand Valley M.E.A. entertained members' wives, and the ladies' attendance added a friendly social atmosphere. The ladies joined their husbands for lunch at the Palmerston Legion Hall where the convention was held, and later were guests of Palmerston P.U.C. on a scenic bus tour which included a visit to Conestoga Dam. They rejoined the menfolk for the banquet when the Association's new President, H. M. Scheifele, Waterloo, took over the gavel from G. H. Glover, St. Marys.

As Immediate Past President, Mr. Glover remains a member of the executive with H. O. Hawke, Galt, Honorary Vice-President; J. F. Edwards, M.L.A., Palmerston, First Vice-President, and T. J. Moffat, Listowel, Second Vice-President. Directors for this year are: A. R. Moore, Stratford; A. J. Girdwood, Guelph; W. J. Mills, Goderich; O. J. Little, Preston; R. G. Charlton, Hespeler, and Bruce Weber, Kitchener.

by E. B. Bolwell



REPRESENTING the co-sponsors of the provincial contest, Walter J. Holsgrove, Chairman, Ontario School Trustees and Ratepayers' Association Committee (left), and H. A. McCallum, Hydro's Education Liaison Officer, discuss details of the competition.

Hydro lends a hand in

HELPING JUNIOR ORATORS

BEFORE Easter, 1959 rolls around, hundreds of Ontario students in the province's elementary and secondary schools – particularly those with an oratorical "bent" – will have gained a new insight into the benefits and innumerable applications of electricity.

Their inspiration will be the possibility of competing in the big 1958-1959 Ontario Educational Association Public Speaking Contest to be held in Toronto next spring.

Ontario Hydro and the Ontario School Trustees' and Ratepayers' Association are co-sponsoring this competition, which began 35 years ago as an elementary school contest.

New Competition

This year, for the first time, a second competition for secondary school students is being inaugurated, with the promise of increased pupil-parent interest in the project.

Approximately 55,000 kits of printed information, including a list of topics and background material – all revolving around the applications of electricity – have been prepared. Each secondary and elementary school in Ontario has already received these kits as the first step in launching the competition. A large supply is still available to meet inquiries from schools and teachers in conjunction with the preliminary school contests. The winners of these initial competitions will be eligible to enter regional public speaking contests.

These regional contests might be described as the semi-finals, for each regional champion will be eligible to compete in the provincial contest during the annual O.E.A. Convention in Toronto during the 1959 Easter vacation.

In the case of the final elementary school contest, the province has been divided into 13 regions, while 10 regional divisions have been established for the purposes of the provincial secondary school contest.

The finals of the elementary school contest will be held in the Crystal Ballroom of the King Edward-Sheraton Hotel on March 31 at 7.30 p.m., while the secondary school provincial competitions will be held the following day, April 1, in the Sheraton Room at the same hour.

Elementary Contest

Elementary school contestants (from public and separate schools and pupils up to Grade VIII in Junior High Schools) must not be more than 16 years of age.

Prepared speeches of not less than five and not more than seven minutes' duration have been prescribed for the finals of the elementary contest. The provincial secondary school competition is open to winners of regional contests who are enrolled in Grades IX to XIII in any secondary school and Grade IX in Junior High Schools. Competitors must give a prepared speech of not less than five minutes' and not more than seven minutes' duration. In addition they must be ready to give an impromptu speech, three to five minutes in length, after being allowed one-half hour to study the subject chosen.

Ontario Hydro, in addition to preparing the background material for the contest, has arranged to assist by donating prizes for the provincial finals. This year again, Walter J. Holsgrove, Westbrook, Ont., President of the County and Municipal Councils' Section of the O.S.T. & R.A., is Chairman of the provincial committee.

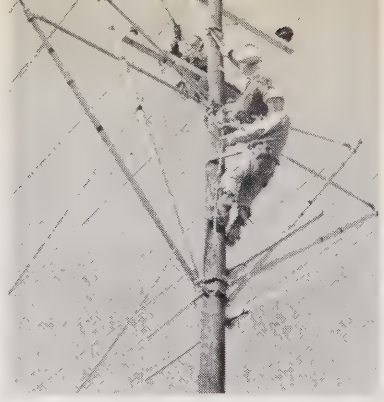
Hydro Helps

H. A. McCallum, Ontario Hydro's Education Liaison Officer, has been designated to supervise all aspects of the Commission's participation in the contests. This entails – in addi-

(Continued on page 27)

TWO of the Ontario Hydro representatives who encouraged Harry Lidstone to go ahead with this award-winning suggestion, A. G. Brenneman (left) and Jack Beaver (right), Operations Engineer and Line Superintendent, Georgian Bay Region, respectively, discuss the new tools with the 39-year-old Bracebridge inventor.





ALTHOUGH it was effective, the conventional method of "set-up" for repairs was slower and frequently entailed service interruptions.

ONTARIO HYDRO COMMISSIONER D. P. CLIFF presents Lidstone with a $1,500 cheque awarded by the Hydro Employees' Suggestion Plan Committee.



TAMING "HOT" LINES

Ontario Hydro line foreman's invention means safer and faster repairs on a growing network of distribution lines

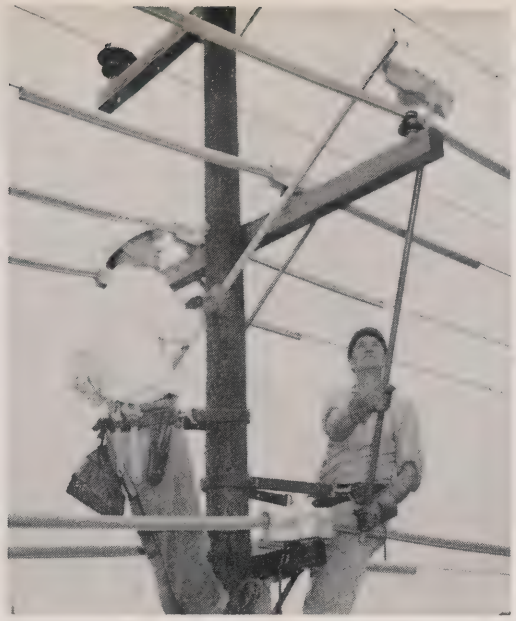
THANKSGIVING Day, 1957, was a busy and profitable holiday for Harry Lidstone, a 39-year-old Ontario Hydro line foreman.

He spent it with his 14-year-old son, Donald, in a workshop behind their Bracebridge home, fashioning prototypes of three tools from a set of drawings he had prepared.

These three simple tools, designed as attachments for Commission linemen's switchsticks, have netted handsome "dividends" for the enterprising Bracebridge Operating Area line foreman. A short time ago Commissioner



TWO HYDRO linemen demonstrate the Lidstone method of placing split rubber hose on a line, using the new tools.



VERSATILITY of the new tools, which are attached to linemen's "switchsticks", is demonstrated here as a split rubber hood is placed over an insulator.



EXPERIMENTS are in progress to determine whether the technique can be used on lines up to 12,000-volt capacities.

D. P. Cliff presented Lidstone with the first $1,500 award made under the Ontario Hydro Employees' Suggestion Plan. Because his idea for safer and faster repair of "hot" distribution lines with capacities up to 8,000 volts represents an estimated annual saving of $25,000 for Ontario Hydro alone, he received $500 more than the normal maximum.

Interruptions Reduced

Lidstone's ingenuity and resourcefulness in developing these new "live-line" tools will also mean the elimination of many of the service interruptions frequently associated with line maintenance work in former years.

While each utility has an individual set of safety regulations and various types of equipment, the Commission's distribution network is fairly typical. Lines with capacities up to 8,000 volts comprise the bulk of this network. For many years, split rubber hose and split rubber hoods, effective on conductors up to the 8,000-volt maximum, have been available to insulate these lines and enable linemen to work in complete safety.

Unfortunately it has been impossible to place these hose and hoods by hand on lines exceeding a 5,000-volt capacity limit as linemen's rubber gloves are not considered to afford adequate protection for direct contact with conductors over this voltage.

Harry Lidstone first heard of the problem at a line superintendent's conference in Toronto. While returning to Bracebridge, he began to turn the matter over in his mind, examining it from every angle of his 20 years' experience as a Hydro lineman. An idea began to form, drawings took shape, prototypes were manufactured and field tests were made.

Field Tests

The field tests proved conclusively that his method was both practical and inexpensive; that it would result in great savings in power interruptions and time spent in "setups." Using the Lidstone tools, it was found that two linemen could slide the split rubber hose on to power lines, and place the split rubber hoods over insulators without human contact. Thus the conductors were surrounded by a protective shield of rubber through which repairs could be made in perfect safety. Furthermore, it was discovered that the "hot line" could be made ready for this safe repair work in 12½ to 15 minutes, instead of the 45 to 60 minutes required in the conventional method.

The Lidstone technique seems destined for acceptance by Ontario municipal utilities, which have 8,000-volt lines, with further substantial savings in time and money. Eventually, it is anticipated, electrical utilities in many parts of the world will adopt this unique and inexpensive "set-up" procedure. Meanwhile Commission experiments are going forward to test the possibility of applying the new method on lines up to 12,000 volts.

Thus the curiosity and initiative of Harry Lidstone has brought about greater safety to countless fellow-linemen, while utilities and their customers will benefit in savings of time, money, and even better service.

– by Horace Brown.

Bowmanville's 100-year history records many changes, but nothing has changed its desire for progress and expansion

CENTURY TOWN

by Joan MacLean



BOWMANVILLE'S MAIN THOROUGHFARE, KING STREET, FOLLOWS A CURVING PATH.

"All things change, nothing perishes." So wrote Ovid, the Roman poet, and so it has been with century-old Bowmanville, whose changes have given it an individuality and an intriguing charm of its own.

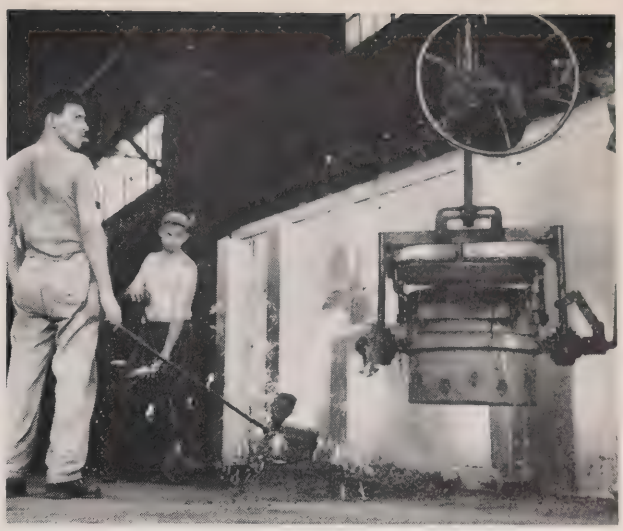
Even the name of the town has varied since the first families built their homes in the district. Situated in Darlington Township, the tiny settlement was known initially as Darlington. After John Burk built a saw-mill and grist mill on Barber's Creek, it became Darlington Mills. In 1824, Charles Bowman purchased the mills and a store, which became the nucleus of the settlement. About that time, the name Bowmanville came into general use, but not until the 1850's was the name of the village changed by royal proclamation.

Bowmanville's main street has also boasted a variety of designations — the Danforth Road, Kingston Road, No. 2 Highway (outside the town limits) and today, King Street.

But there's one thing that this thriving community has steadfastly refused to change and that is its coat-of-arms — even though a mistake was made in selecting a crest for the growing settlement.



"MR. BOWMANVILLE" HIMSELF — George W. James — chats with a local merchant, Al. Davis, on King St., opposite the public library.



EMPLOYEES are superintending the pouring of molten iron in the Bowmanville Foundry Company plant, one of the oldest industries.

One of the early town fathers felt the Bowman coat-of-arms was appropriate, but unfortunately he chose the English Bowman family crest instead of the Scottish Bowmans, who gave their name to the town. By the time the mistake was discovered, the crest was firmly established and remains so today.

By 1852 the settlement's population had reached the minimum of 1000 required for incorporation as a village. Within five years the population had tripled to 3000, as required for incorporation as a town.

Centennial Celebrations

This year, the Town of Bowmanville is celebrating its centennial. The formal observances included an "Old Home Week" reunion, parades, picnics and class gatherings. This was not the first or only centennial celebrations at Bowmanville. In 1894, it was the focal point of a ceremony, which marked the landing on Lake Ontario's shores of the first three white settlers in Darlington Township.

Bowmanville's proximity to a main highway, a harbor and a railway line has had a dynamic effect on its population growth. Of course it didn't have a four-lane highway running past its front door in the 19th century. Thus the Port Darlington Harbor Company started operations in 1839, and business boomed during the first 10 years. Shipments of cordwood for wood-burning steamers were largely responsible for this prosperity, but passenger service to and from the harbor was also profitable.

The announcement that the main Grand Trunk Railway line between Montreal and Toronto would go through Bowmanville brought with it a land boom in the area, as well as another profitable means of transportation. The advent of railway service also brought an early upsurge in industrial activities. One of the earliest factories made hoop skirts to order, and also remade, altered and repaired this cumbersome item of feminine dress. The plant went out of business when the fashion died out.

Many of the town's industries, of course, are still flourishing, and are, indeed, the backbone of the community. One of the largest is the Goodyear Tire and Rubber Co. of Canada Limited, which began operations in 1910.

The first mention of a rubber company in Bowmanville's history appears in the town council records of 1896. A year later, the Bowmanville Rubber Company sprang up for a year and then disappeared. In 1898, the Durham Rubber Co., Ltd. appeared and operated with increasing financial difficulty until Goodyear Tire and Rubber Company bought it out in 1910. When this company outgrew the Bowmanville facilities, part of its operation was moved to Toronto, but the mechanical goods and solid tires departments remained.

Today Bowmanville produces a wide range of mechanical goods used in modern industry. Goodyear's Bowmanville plant now represents an investment of over $5,000,000, with an estimated replacement value in buildings and equipment of more than $9,000,000.

The Bowmanville Foundry Company, established in Bowmanville in January, 1902, originated in Paris, Ont. This firm moved to Bowmanville to facilitate shipments to a major customer, the Dominion Organ and Piano Company, for which it made piano pedals and other steel and cast parts. At that time Christian Rehder was General Manager. Later he

(Continued on page 16)

bought out his partner's share in the firm, and the foundry company has remained in the Rehder family ever since.

The names of other industries in Bowmanville tell their own story: Bowmanville Glove and Mitt Co., Limited; Canadian Canners, Ltd., Branch Factory No. 64; Smith Beverages, Ltd., Specialty Paper Products Limited, and the H. Powell Chemical Company, Limited. R. M. Hollingshead of Canada Limited is the headquarters for the manufacture of automotive, industrial and household chemicals, and is fondly referred to by residents as the "Whiz Company."

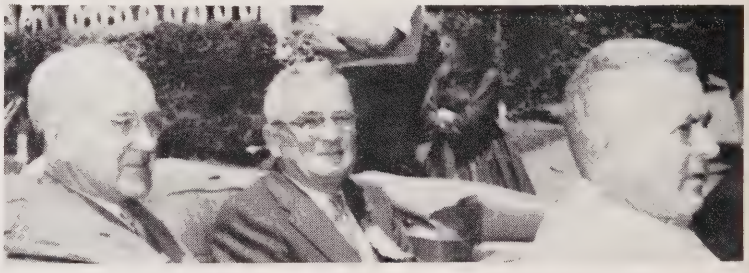
Family Industry

Several mills have been built in the Bowmanville area since the first ones were started by John Burk, but only one has survived. The Vanstone Flour and Feed Mill, another family operation, has operated under the same name, although not in the same location, since 1853.

Nurseries, including the old-fashioned market gardens, have also provided employment for local residents. Brookdale-Kingsway Limited, which had its beginnings in two separate nurseries about 1919, is one of the best-known Canadian nurseries today, and covers several acres in the southern part of the town. Four other







HERE ARE some of the community's public-spirited citizens, who have guided its progress as chief magistrates. As former mayors they were key figures in the centennial parade earlier this year. In the top picture are: G. Alex Edmonstone (left) and Milton J. Elliott, present Bowmanville P.U.C. Chairman; (centre) Reginald Jones and C. G. Morris; (bottom) W. Ross Strike, Hydro's First Vice-Chairman (also a local utility commissioner); Sidney Little and Lawrence C. Mason.

KINDERGARTEN CLASS at the Vincent Massey Public School, which was built in 1951 and named in honor of Canada's Governor-General.



UTILITY CASHIER Shirley McBain deals with a customer while Manager G. T. VanBridger confers with Bertha Colville and Marie Brown.



small nurseries are also located in the vicinity.

The increasing use of electricity at Bowmanville is another accurate yardstick of its growth.

Power was introduced in 1887 by the Bowmanville Electric Light Company, which installed 15 street lights of 200 candlepower each. Back in those days, and probably up to the turn of the century, the plant shut down at midnight, and, of course, the street lights went off at the same time. For special occasions, such as the annual Bachelors' Ball, arrangements had to be made in advance with the company to ensure street lighting after midnight.

From 1905 until 1911, the central Ontario Electric Power Company supplied power for street lighting. Seymour Power Company purchased this plant, and maintained service until the Ontario Government acquired the company's interests in 1916.

Ontario Hydro operated the local system until 1932 when Bowmanville citizens voted – 804 to 138 – in favor of purchasing and operating the town's electrical facilities as a municipal utility.

Evidence that the townsfolk of this solid community have known how to "Live Better Electrically" for many years is supplied by the steady climb of the electrical load. When the local utility was established, the total load stood at 1,157 kilowatts. (At that time the local system handled electrical service for both municipal customers and others in the adjacent rural areas. This arrangement was terminated in 1953 when Ontario Hydro established the Bowmanville Operating Area to administer electrical distribution beyond the municipal limits.) Today, Bowmanville Public Utilities Commission serves 2,167 domestic customers, 131 commercial and 40 industrial enterprises, and its load has passed the 6000-kw. mark.

Another illustration of the utility's reputation for "doing things," has been the rapid discharge of its 20-year debenture debt. A decade after it issued $71,000 worth of debentures to purchase the local electrical system, Bowmanville P.U.C. made the final payment. The answer can be found – partially, at least – in the long-service records of two of its present commissioners. The 1958 Chairman, Milton J. Elliott, and Commissioner W. Ross Strike, Ontario Hydro's First Vice-Chairman – both ex-Mayors of Bowmanville – will soon complete 25 years' association with the utility. Mayor Nelson E. Osborne is an ex-officio commissioner while George T. VanBridger is Manager and Secretary-Treasurer of the utility, which also handles operation of the town's water and sewage systems.

Evolutionary Process

Bowmanville's present educational system is the product of a long and evolutionary process whose highlights offer further convincing proof of the steady, substantial character of its citizens. Bowmanville's early junior residents attended "dame" schools, run by refined spinsters, and private schools. Two public schools united in 1885 with the Grammar School to become the United Common and Grammar School. It was destroyed by fire in 1887, and two public schools were erected in 1889. Central School is still in use today. Ontario Street School was built in 1949, closely followed by the Vincent Massey Public School in 1951.

Plans for a high school materialized in 1890. Bowmanville outgrew this original building, and in 1929 an addition was built at the front of the building. With two further additions since that time, it is now known as Durham County District High School.

As in most pioneer communities of Upper Canada, the first religious services in the Bowmanville area were held by "saddle bag" preachers. Gradually small chapels were built and a large number of sects and denominations came into the district.

(Continued on page 27)

ST. JOHN'S ANGLICAN CHURCH, dedicated in 1856, enjoys the distinction of being the oldest church in the community.



BUILT a century later by new Dutch immigrants in the area, the architecture of Rehoboth Christian Reformed Church contrasts strikingly with St. John's.



PROJECT COLDWATER

TEST LINE

Ontario Hydro engineers to initiate extra high voltage transmission studies

With the completion of the St. Lawrence Power Project in 1959, the era of great hydraulic power developments will have ended in Ontario. In the next decade the emphasis will be placed on conventional thermal-electric generation and Ontario Hydro has already announced major projects of this nature.

At the same time, a number of smaller hydro-electric sites remain to be developed in the more remote parts of the province. It is estimated that as much as a million kilowatts of electric power is available in northeastern Ontario. The problem of incorporating this power into the Hydro system economically will be solved with the use of extra high voltage transmission.

Initial plans call for the construction of two, EHV lines, each 250 miles long, between a northern gathering point and a new station in the vicinity of Sudbury. If the new capacity developed in northern Ontario should exceed the capabilities of the existing transmission facilities between Sudbury and southern Ontario, then it would be necessary to extend the EHV transmission system to the Toronto area.

The maximum operating voltage is expected to be in the range of 440 kv-500 kv, but there is not sufficient data available to proceed with the design of a minimum cost line. To obtain the answers to critical questions inherent in the design of extra high voltage transmission facilities, a test line will be built in the vicinity of the Town of Coldwater, about 20 miles northwest of Orillia. To be known as the Coldwater Project, it is scheduled for completion early in 1959.

Two-Year Study

The two-year initial study is aimed at establishing data for lines in the range of 380 kv to 600 kv. There is no intention, however, of duplicating tests, which have already produced answers in the field of EHV. Certain basic design requirements for lines in this voltage range have been established, i.e., it is generally agreed that bundled conductors will have to be used on these lines. However, due to the lack of full-scale, three-phase test data on bundled conductor arrangements in this voltage range, additional tests must be undertaken to determine corona and radio influence characteristics of two, three- and four-conductor bundles. It is expected that an electronic digital calculator will be used to process the data obtained.

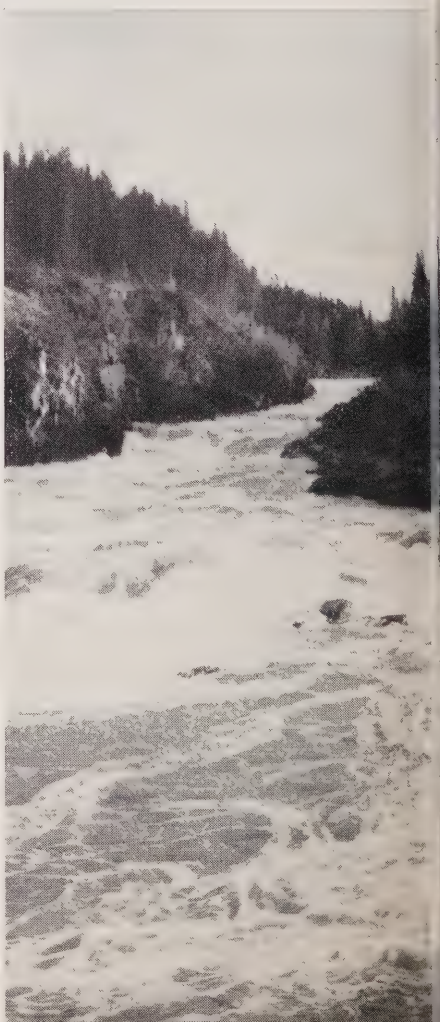
Determination of the optimum phase spacing, bundle spacing, conductor size and hardware design requirements will be the prime objective. Magnitude of corona losses and radio noise levels will be measured for each conductor arrangement. Weather data will be continuously recorded during the tests.

The advantage of hybrid design, that is a smaller conductor diameter on the outer two phases,* will be assessed. Voltage will be variable in 5-kv. steps from 260 to 600 kv. phase to phase, and a variable reactor in one phase of the supply will provide control of the unbalance in surface voltage gradients among the three-phase conductors.

It is suspected that the results of some previous tests had been adversely affected by noisy hardware. It is proposed to use standard hardware, but precautions will be taken to shield against any radio interference producing elements.

The test line will be constructed of two, 2500-foot, three-phase sections, using wood pole structures and extending in two directions, about 180 degrees apart, from the test transformers. The average span length will be about 600 feet. The suspen-

*"*Interference Studies on 250-kv Wood Pole Circuits — Use of Oversized Centre Phase Conductor*" — *C.I.G.R.E. No. 309-1958.*



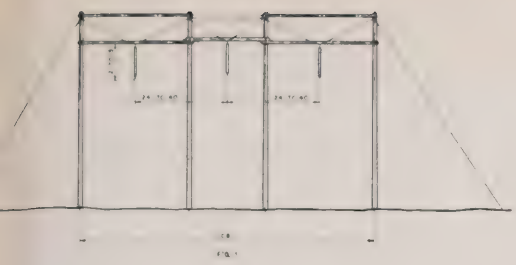


FIGURE 1. Extra High Voltage test line structure.

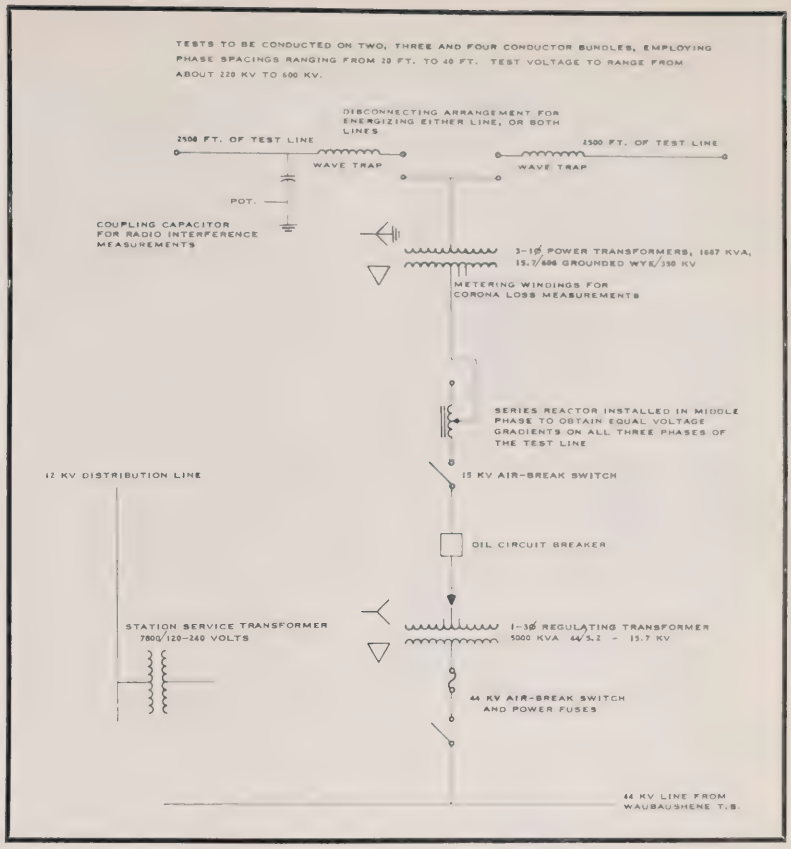


FIGURE 2. Schematic diagram of set-up for Extra High Voltage transmission line tests.

OTTER RAPIDS, on the Abitibi River, is one of several smaller hydro-electric sites in northeastern Ontario with an estimated total potential of more than one million kilowatts. This new Commission development is scheduled for service in 1961. Its total capacity is presently rated at 131,000 kilowatts.



sion structures will carry two ground cables and will provide for varying the phase spacing between 24 and 40 feet (Fig. No. 1). ACSR conductors from 0.8 to 1.4" diameter will be supported by a single string of 28 5¾" x 10" insulator units. The line will be fed from a 44-kv. line emanating from Waubaushene Transformer Station near the southeast tip of picturesque Georgian Bay. Fig. No. 2 shows a single line diagram of the electrical components of the test set-up.

Other Objectives

After the primary objectives have been accomplished, consideration will be given to the following: (a) Determination of minimum insulation level. (b) The development and simplification of hardware designs. (c) Vibration characteristics of 2, 3 and 4 conductor bundles. (d) Solution of some live-line maintenance problems. (e)

(Continued on page 24)

Western Ontario A.M.E.U. Accounting and Office Administration Conference delegates urged to participate in the "Live Better Electrically" campaign

SELL WITH RESULTS

NIAGARA Falls, Ont. – site of many impressive hydro-electric installations and a thriving tourist centre – spread out the welcome mat this fall for the 26th annual conference of the Western Ontario Division, A.M.E.U. Accounting and Office Administration Conference.

The two-day program covered a wide range of topics related to the field of utility management – from depreciation accounting to fringe benefits, as well as round-table discussions about special management problems. A call for more ardent Canadianism and a tour of the Niagara River area rounded out the program.

Following a speech of welcome to more than 250 delegates by Chairman J. E. Coubrough, Hamilton, the "Live Better Electrically" campaign was outlined by W. Ross Strike, First Vice-Chairman, Ontario Hydro. He was introduced by the program chairman for the afternoon, T. W. Houtby, Welland.

Mr. Strike discussed the origins of the co-operative promotional and educational campaign, and "exploded" several popular misconceptions of the applications and characteristics of electricity. In particular, he stressed the numerous advantages of electric power over other sources of energy.

"Convincing our customers that the Hydro family, and the municipality in particular, can give top service is a job of utmost importance," he said. "The art of creating good customer relationships should receive our enthusiastic attention. We must learn to sell our product and our services to get the best results."

One particular phase of accounting, that of depreciation accounting, was highlighted in an address given by Frank W. Gomer, Accountant, West Central Region.

Defining depreciation accounting as "a system of distributing capital costs," Mr. Gomer outlined modern procedures in this field. He pointed out that depreciation accounting produces available funds which may be invested in plant assets. In addition, he said, it sets up a type of reserve, which indicates the depreciated value of the original assets.

"Formerly, it was a practice to take the actual money involved and keep it in a special investment or depreciation fund . . . This practice has disappeared over the years, and has been replaced by a more economical system

THESE DELEGATES found a subject of common interest during a "buzz session" on utility administration — a program highlight.



– that of investing funds accumulated through the process of depreciation accounting in the capital assets of the business," he said.

Mr. Gomer also discussed briefly the importance of keeping detailed records of land, buildings, poles, conductors and hardware, and the uses of a work order system as a management tool.

Fringe Benefits

Sharman K. Learie, Q.C., Labor Relations Consultant, Niagara Industrial Relations Institute, closed the afternoon session with a discussion of "Fringe Benefits." He divided them into two categories: those which appear in some form on the direct payroll, and those which are not readily apparent.

Into the former category Mr. Learie placed the cost-of-living bonus, overtime, shift work premiums, payment for reporting to work if work is unavailable, emergency work pay, standby pay, annual vacations with pay, paid holidays, jury duty pay and compassionate leave for the death of an immediate relative.

The most expensive fringe benefits are the ones which do not appear on the payroll, he explained. These include: pensions, general welfare items such as life and hospital insurance, sick leave, payment of part or all of a private telephone used for standby service, payment for chauffeurs' licenses, meal allowances, workmen's compensation, coffee breaks (a fringe benefit because the management is not getting work for pay during that period), meetings regarding such items as safety practices, protective clothing, tools and the administrative cost of looking after programs such as charity and credit union activities.

Turning to a different line of thought, Mr. Learie outlined a three-step method of discipline, which has proved itself effective. When a worker commits some misdemeanor for the first time he should be warned. The second time he should be warned, sent home and docked three to five days' pay. The third time he should be dismissed. "In this way the person has fired himself and there is no question of unfairness," Mr. Learie concluded.

During the evening, greetings were extended to the delegates by Mayor E. M. Hawkins of Niagara Falls; from the O.M.E.A. by President Bert Merson; from the A.M.E.U. by President J. A. Williamson; from the Finance and Office Administration Board by Chairman James W. Hammond; and from the Eastern Ontario Committee by George Phillips, Smiths Falls. In recognition of lengthy service to the A.M.E.U., Mr. Hammond presented a fishing rod and reel to H. T. MacDonald, Ontario Hydro, in recognition of his service to the A.M.E.U.

Guest speaker for the banquet, Mayor Armour McRae, Welland, chided Canadians for their lack of national pride. "They have been so busy making history they have had little time to record it," he said. "But if Canadians are going to grow together, every Canadian must be bilingual. Many of French-Canadian descent in the Province of Quebec and other parts of Canada already speak both languages."

The banquet concluded with a display of hypnosis by Lloyd Young, Information Officer, Niagara Region, Ontario Hydro.

Buzz Sessions

A change in format started the second day's program, and delegates remained at the breakfast tables for "buzz sessions" or round-table dis-

(Continued on page 22)



THIS GROUP (left to right): Harold Brownhill, Stamford Township; A.M.E.U. President J. A. Williamson, Niagara Falls; George Conn, Accountant, Hydro's Niagara Region; S. K. Learie and Ray Pfaff, St. Catharines, was noted discussing aspects of industrial relations.



IN RECOGNITION of his lengthy service to the A.M.E.U., Harold Macdonald, Ontario Hydro's Internal Auditor (centre), formerly a supervisor of municipal accounting, was presented with a fishing rod and reel by J. W. Hammond, Hamilton, during the banquet.



FOUR-TO-ONE ODDS seems to please A. E. Davies, who is demonstrating a billing machine to four delegates (left to right): Miss Helen McCartney, Goderich; Miss Elaine Biederman, Port Colborne; Miss Karen Pitblado, Goderich, and Miss Winona Nelson, Kincardine.

cussions. Methods of billing, general policies on meters and topics such as "What can be done to combat absenteeism?" and "How much warning should a customer receive before disconnecting the service for non-payment of account?" Reports and summaries of these discussions were presented later in the morning.

Chairmen of the various discussion groups were: H. H. Brennan, W. C. Noakes, R. A. Holliday, K. C. Gerhard, E. H. Ellis, Dan Gorrie, D. N. Durward, J. G. Gow, H. A. Luckins, B. L. Caskey, R. C. Logan, J. F. Cook and D. B. Michie.

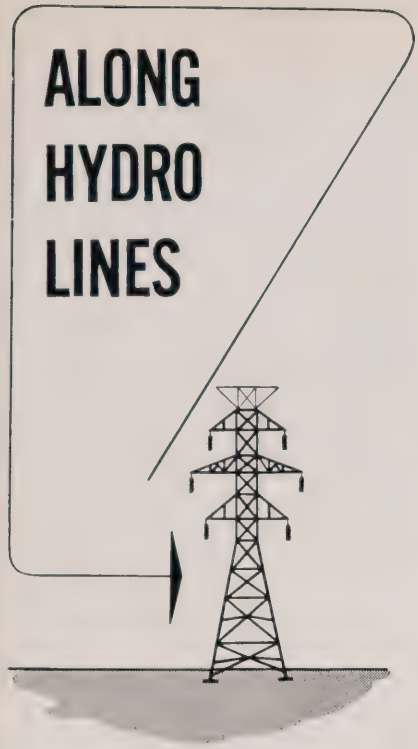
W. Roy Harmer, Assistant Director of Ontario Hydro's Consumer Service Division, closed the morning program with a discussion of Ontario Hydro's Electric Water Heater program. The convention ended with a tour of the Niagara River area, including the Whirlpool, Table Rock House, the floral clock and Sir Adam Beck - Niagara Generating Station No. 2.

In accordance with a new policy to provide continuity, J. E. Coubrough, Hamilton, was nominated to serve again as Chairman of next year's convention to be held in Kitchener. Chairmen will now hold office for two years, and vice-chairmen, who will be nominated in alternate years, will be nominated as chairmen at the end of their two-year terms as vice-chairmen. H. A. Luckins, Sarnia, was nominated as vice-chairman for next year's convention. — *by Joan MacLean.*

A LAST-MINUTE CHECK on the afternoon agenda is made by (left to right): Conference Chairman J. E. Coubrough, Hamilton; W. Ross Strike, Hydro's First Vice-Chairman; T. W. Houtby, Welland, a session chairman, and Frank W. Gomer, Ontario Hydro.



ALONG HYDRO LINES



W. A. Wagner Named Hydro Commissioner

Richmond Hill Town Council unanimously chose William A. Wagner as a member of the Richmond Hill Hydro Commission, replacing D. E. Dingwall who recently resigned.

Mr. Wagner recently retired from the position of Treasurer and Director of the Colgate-Palmolive Company, with which he was associated for 39 years. A resident of Richmond Hill for the past 14 years, he has participated actively in community affairs. He is a Past President of Richmond Hill Lions Club.

Port Elgin Favors Public Utility Body

Operation of Port Elgin's Hydro, water and sewage systems by a public utilities commission has been approved by the municipal council, which will submit the question to the ratepayers at the next municipal elections. At present, water and sewage are administered by the municipal council while electrical distribution is handled by the Port Elgin Hydro-Electric Commission.

Utility Advertisement Gets Honorable Mention

An advertisement prepared by W. J. Underhill, General Manager, St. Thomas P.U.C., and published in the *St. Thomas Times-Journal*, has received honorable mention in a recent issue of the *Publishers' Idea Exchange*, a monthly U.S. publication.

Mr. Underhill's advertisement, headed "Rattlesnakes Give Warning Before They Bite — But Electricity Doesn't," warns of the dangers inherent in children playing near fallen wires or live electrical equipment.

Associated with Ontario Utilities Since 1950

C. V. MacLachlan, recently appointed Manager and Secretary of Ingersoll P.U.C., has been associated with utility work in Ontario since 1950. He was Assistant Superintendent of Waterloo P.U.C., as well as Assistant Engineer and Assistant Superintendent of the Hydro Division of Windsor Utilities Commission for 5½ years.



C. V. MacLACHLAN

Born at Fergus, where he received his secondary education, Mr. MacLachlan served with the R.C.A.F. as a radar technician. He graduated in electrical engineering from McGill University and is a member of the Association of Professional Engineers of Ontario and Jr. E.I.C. He served as Secretary of the Grand Valley Meter Association in 1952-1953.



J. F. ANDERSON

J. F. Anderson Named Leamington Manager

Jack F. Anderson, Ontario Hydro's acting Manager of Windsor Operating Area for the past year, has been appointed Manager of Leamington P.U.C. A former Consumer Service Supervisor in the Commission's Western Region, Mr. Anderson assumed direction of Leamington's electrical and water departments on October 1 this year.

The new utility manager was born at Exeter in 1920 and served overseas with the R.C.A.F. for 3½ years. After receiving his degree in electrical engineering from the University of Toronto in 1950, he joined Ontario Hydro. As a consumer service supervisor and acting area manager, he acquired valuable experience in utility operations. He is married and the father of two daughters.

Lanark Introduces New Rate Structure

A new four-block rate structure for domestic electrical customers will be used in the Village of Lanark, starting January 1, 1959. Introduction of the new rate schedule will mean a reduction of approximately 15 per cent for domestic customers.





PLOWING PROWESS

A PROUD mother, Mrs. Alexander McKinney, accepting the Ontario Hydro trophy at the International Plowing Match on behalf of her son, Alex, is congratulated by O. S. Luney, Manager of Eastern Region, Ontario Hydro. This year's match, sponsored by the Ontario Plowmen's Association, was held near Crysler, Ontario, in the St. Lawrence Power Project area. Ontario Hydro's display included a demonstration of the benefits of electrical service on the farm and its uses 24 hours a day, a model of an Ontario farm, a replica of the St. Lawrence Power Project and a "fly-catching" machine, which electrocutes flies and other insects. Nineteen-year-old Alex McKinney (shown on the tractor), who won the fractional horsepower motor donated by Ontario Hydro, is a Grade XIII student at Brampton District High School. His plans for the future include agricultural college and a dairy farm of his own. He won first prize in Class 18 for tractor plowing, open to those under 21 years of age who had not won first or second prize in the open tractor class.

John Lyons Heads Eastern Metermen

John Lyons, of Almonte, was elected President of the Eastern Ontario Metermen's Association at the annual fall convention held in Renfrew. He succeeds Fernand Beauchamp, Renfrew.

Other officers elected were: Ormand Grierer, Renfrew, vice-president; Kenneth Drummond, Carleton Place, secretary-treasurer; Everett Hepton, Ottawa, J. H. Delorme, Cornwall, Stanley Harrison of Gananoque, and Arthur Veryard of Kingston, all directors.

A highlight of this year's meeting was a tour of Ontario Hydro's Chenaux Generating Station on the Ottawa River.

POWER TUNNEL

(Continued from page 5)

ever been used on a 2½-year project of similar size," Mr. Stratton said.

Modern Community

Besides administrative offices, workshops and warehouses, the Silver Falls community includes a recreation hall, medical centre, two-room school, cafeteria and fire hall, as well as staff and employee quarters. Because of the proximity of Port Arthur and Fort William, some of the more than 400 persons employed at the site commute from the Lakehead.

The Commission has provided five staff houses and 17 staff trailers on a rental basis. Workers, with the choice of either buying building materials from the Commission or providing their own, built 17 homes. They pay a nominal rental fee to cover sewage and water facilities. Some 29 employee-owned trailers complete the community.

Despite the comfortable homes and dormitories and the active community life that has developed, the project colony is destined for a short life. Once the generating station is put into service in the fall of 1959, it will be operated by automatic supervisory equipment at Port Arthur Transformer Station No. 1. ■

TEST LINE

(Continued from page 19)

Stringing methods. (f) Economic conversion of 115-kv. and 230-kv. lines to higher voltage levels.

Structural studies are now being conducted in conjunction with the electrical investigations. The cost variation for different phase spacings, the relative cost of provision for a range of longitudinal unbalances, the closer evaluation of actual conductor swings, the cost of restraining swing of conductor strings, and the economic balance between conductor tension and span lengths will be investigated. Other structural considerations will include the form and type of tower best suited to EHV transmission and to local climatic and soil conditions.

INTERNATIONAL VISITORS

HARDLY a week has passed this summer and fall without some important international or Canadian group being registered in the guest books of the Robert H. Saunders - St. Lawrence Generating Station and the Sir Adam Beck - Niagara Generating Station No. 2.

Top-ranking Soviet aircraft industry officials, headed by T. G. Demenjev, Minister of Air, U.S.S.R., and A. J. Mikoyan, MIG Aircraft, visited the Sir Adam Beck station recently. Arrangements for the visit of the Russian group followed a trip made to Russia last May by a party of more than 30 prominent Canadian business executives (including the Commission's Chief Engineer, Dr. Otto Holden), headed by Edgar T. Alberts, Toronto insurance executive.

In the upper photograph, left to right, are: A. I. Mikoyan, MIG aircraft; Gail Snyder, Ontario Hydro guide, and Mr. Demenjev.

Eleven Russian engineers, including one woman, who work in hydro-electric stations in the Soviet Union, had one of their wishes gratified when they inspected Ontario Hydro's Sir Adam Beck station a few days after the visit of the air officials. The lower picture, right, shows the visitors during their conducted tour of the plant. Left to right are: Sim V. Novotorof, Mrs. Kaleria Kernojitskaia and Jaroslav Plaviuk.

Ontario Hydro also played host during October to a group of top-ranking Canadian and international financiers, who visited the St. Lawrence Power Project. The occasion was a highlight of the Montreal and Canadian Stock Exchanges' Tour for representatives of overseas stock exchanges and banking institutions. Five members of the visiting party are pictured below in the information centre on the roof of the new station's administration building. They are, left to right: Paul Detroy, Vice-President, Brussels Stock Exchange; P. F. J. de Kok, President, Amsterdam Stock Exchange; H. K. Crabtree, Chairman, Montreal Stock Exchange; Dr. Charles de Loes, President, Association Suisse des Banquiers, and Dr. Alfred Rossi, Secretary, Zurich Stock Exchange.







Hydro Closes Bothwell Office

R. M. Laurie, Manager of Ontario Hydro's Western Region at London, has announced that the office of the Bothwell Operating Area was closed effective October 1. Plans have been completed for the amalgamation of the Bothwell Area operations with the West Lorne and Ridgetown Areas.

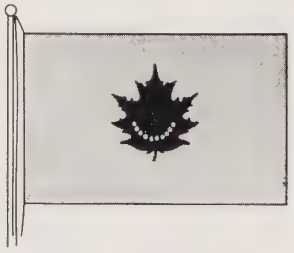
Arrangements have been made for the transfer of the Bothwell Area staff to adjoining areas. Closing of the Bothwell office is co-incident with the retirement of Manager B. H. Hankinson, who has completed 31 years' continuous service with the Commission.

Award Contract

Thorold P.U.C. has awarded a $58,000 contract to a local contractor, Daniel W. Holmes, to construct a new utilities building. The new two-story structure will be built on the site of the former building destroyed by fire last March.

A New Flag

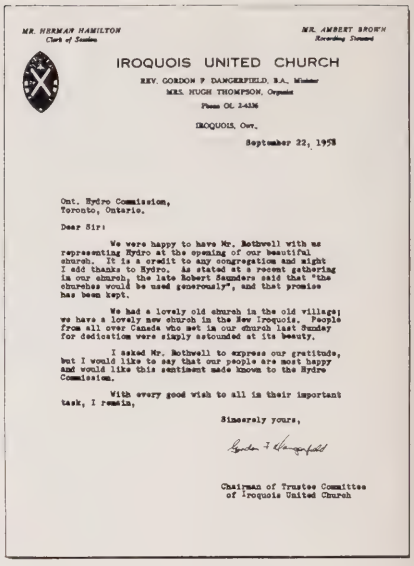
An original design for a Canadian flag has been created by John T. Barnes, a member of the Sarnia Hydro-Electric Commission. Mr. Barnes, who first designed the flag in



1949, explains that the large green maple leaf in the centre signifies the "ever-living unity of Canada"; the small white maple leaves signify the "purity of each province", and the red background signifies the "true patriotic fervor of our nationality." A printed reproduction, lithographed in actual colors, with an explanatory article has been sent to every member of the Canadian House of Commons.



A TOKEN OF APPRECIATION



MR. HERMAN HAMILTON
Clerk of Session

MR. AMBERT BROWN
Recording Steward

IROQUOIS UNITED CHURCH

REV. GORDON F DANGERFIELD, B.A., Minister
MRS. HUGH THOMPSON, Organist
Phone OL 2-4436
IROQUOIS, Ont.

September 22, 1958

Ont. Hydro Commission,
Toronto, Ontario.

Dear Sir:

We were happy to have Mr. Bothwell with us representing Hydro at the opening of our beautiful church. It is a credit to any congregation and might I add thanks to Hydro. As stated at a recent gathering in our church, the late Robert Saunders said that "the churches would be used generously", and that promise has been kept.

We had a lovely old church in the old village; we have a lovely new church in the New Iroquois. People from all over Canada who met in our church last Sunday for dedication were simply astounded at its beauty.

I asked Mr. Bothwell to express our gratitude, but I would like to say that our people are most happy and would like this sentiment made known to the Hydro Commission.

With every good wish to all in their important task, I remain,

Sincerely yours,

Chairman of Trustee Committee
of Iroquois United Church

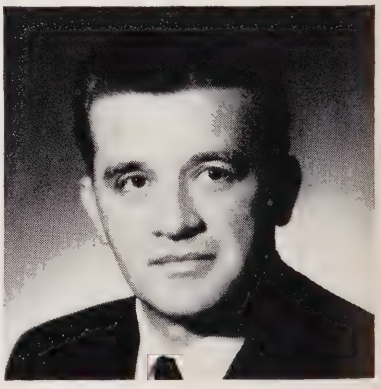
IROQUOIS United Church marked an important milestone in its history when a large congregation, consisting of representatives of many faiths, participated in the recent dedication of their new church edifice, shown in the accompanying photograph. The dedication service was conducted by the minister, Rev. Gordon Dangerfield, assisted by visiting clergymen. Reproduced herewith is Mr. Dangerfield's letter to the Commission, expressing the appreciation of the Trustee Committee and the members of the congregation for the handsome new church, built by Ontario Hydro as part of the relocation program associated with the St. Lawrence Power Project.

Amherstburg Supports Water Heater Program

As part of its aggressive sales campaign, aimed at increased use of electricity, Amherstburg P.U.C. has agreed to underwrite installation costs of water heaters in the municipality.

The utility will pay a $40 installation fee to every customer who installs an approved-type heater, either a renewal or new installation, subject to inspection and approval, on the guarantee that the unit is to remain in the municipality for a 10-year period. Manager F. A. Bridle reports that this program has been well-received by local merchants, electricians and plumbers, as well as domestic customers. Since the inauguration of the plan, installation of electric water heaters has exceeded the utility's expectations.

Heads Niagara Electric Club



W. G. VIVIAN

A member of Hamilton Hydro-Electric System staff, W. G. "Bill" Vivian, was recently elected President of the Niagara District Electric Club at the 20th anniversary meeting.

CENTURY TOWN

(Continued from page 17)

How the various denominations divided, subdivided and united Canada is a story in itself. It is enough to say that Bowmanville, with its present population of 7000, supports nine churches. Briefly, they are: St. Andrew's Presbyterian; St. Paul's United and Trinity United; St. John's Anglican; St. Joseph's Roman Catholic; the Salvation Army; Baptist; Pentecostal and Rehoboth Christian Reformed.

The Christian Reformed Church, Bowmanville's newest, draws its congregation from the large number of immigrants who came into this area from the Netherlands after World War II. Knox Christian School, not mentioned previously in conjunction with the other Bowmanville schools, is a private school for the children of Dutch parents who adhere to the three standards of the Reformed faith. At present the school, which was opened in September, 1957, has an enrolment of 130 district pupils and four teachers.

Outstanding Newspaper

Serving the community by recording the history of Bowmanville week by week since 1855, has been *The Canadian Statesman*, successor to another newspaper, *The Messenger*. *The Statesman* has been in the James family since 1878, when M. A. James purchased it. He took his two sons, George and Norman, into equal partnership in 1919, with Norman in charge of the mechanical side of the business and George in the editorial chair. After Norman's sudden death in 1929, his widow became a silent partner until 1947 when their son, John M. James, the present editor, became a partner with George W. James.

George James thinks he and his father, M. A. James, were one of the few father-and-son combinations in Ontario municipal politics. M. A. James was Bowmanville's mayor in 1903-1904. Twenty-four years later, George James also served one term as the town's Chief Magistrate.

In fact, you could almost say that George W. James is "Mr. Bowmanville". He takes a personal pride in the achievements of his "Durham County Boys," who cut their teeth on *The Statesman*. Included in this category are: Dr. Herbert A. Bruce, a former Lieutenant-Governor of Ontario; the late W. D. Robbins, a former Mayor of Toronto; the late J. E. Atkinson, President of the *Toronto Daily Star* for many years; His Excellency, the Rt. Hon. Vincent Massey, Governor-General of Canada, and R. S. McLaughlin, Chairman of General Motors of Canada.

Mr. James is the only surviving member of the first Bowmanville Canadian Club, established in 1919. In recognition of Col. Charles L. McCullough, who founded the Canadian Club movement in December, 1892, a plaque will be erected at Bowmanville, due largely to Mr. James' efforts.

Little wonder then that countless Bowmanville citizens recognize that the substantial qualities of men like George W. James and family institutions such as *The Canadian Statesman* and the Bowmanville Foundry Company, have provided the driving force behind their thriving and progressive community. ■

A.M.E.U. Members Bereaved

Sympathy is being extended to W. Ronald Mathieson, A.M.E.U. Secretary-Treasurer, Toronto, and to his mother, Dr. Lily Mathieson, Belleville, in the tragic death of Miss Mary Mathieson, sister of the A.M.E.U. executive officer. Miss Mathieson was the only Canadian aboard a B.E.A. airliner enroute from London, England, to Naples, Italy, on October 22 when the plane, carrying 31 passengers and crew, crashed after a collision with a jet fighter aircraft. The deceased was a graduate of Trinity College, Toronto, and the Toronto Conservatory of Music.

Mrs. Eva H. Ford, mother of W. B. Ford, Manager and Secretary of Blenheim P.U.C., passed away recently. Interment took place at Comber, Ont.

HELPING JUNIOR ORATORS

(Continued from page 11)

tion to co-ordinating distribution of the information kits — numerous contacts with other organizations to stimulate their interest in the province-wide project and to encourage the donation of other prizes and awards. Sample kits of the material have been sent to all Commission regional managers, who will, in turn, provide similar information to area managers under their jurisdiction. Municipal utility representatives have also been advised of the opportunity this competition affords to promote "Live Better Electrically" programs in their communities by supporting the school and regional contests. ■

Napanee Doubles Capacity

Napanee P.U.C. has awarded a contract for a new $36,000 substation, which will double the capacity of the utility's distribution system. The investment will be met entirely from available funds.

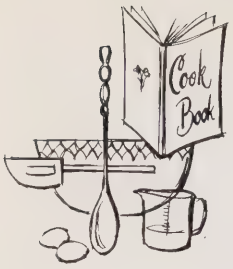
John Brown



JOHN BROWN

Active in civic affairs for more than three decades, John Brown, 1958 Chairman of Scarborough Township Public Utilities Commission, died recently.

The deceased, who was elected to Scarborough P.U.C. in 1934 and honored by the O.M.E.A. for his long service in 1955, was born in England in 1883. After coming to Toronto he became associated with the printing and lithography field, retiring in 1957. Well-known in Masonic circles, he also took a keen interest in the activities of the Scarborough Lions Club of which he was a Past President. Before his election as a utility commissioner, he served for seven years as a public school trustee. He is survived by his wife and one daughter.



LET'S CHAT



with Gwyneth Reed of Ontario Hydro's Anne Allan Homemakers' Service

MANY centuries ago man discovered fire. Then he learned to ignite a brand and set it up in a dark corner of his cave. And so was born the science of lighting — a science that has progressed through many successive stages. Thomas Alva Edison's invention of the first incandescent bulb — an electric lamp that shone for 40 hours — was a major achievement in man's effort to conquer darkness. Since then the life of lamps has improved, with styling and color adding to the comfort and convenience that modern lighting brings to modern living. In the future we may expect walls and ceilings of light supplied by electro-luminescence, a method of providing light with a glass panel.

Modern lighting has many applications. Numerous types of electric fixtures and lamps are available today for general lighting purposes, and to meet the special requirements of reading, sewing, etc. Now, too, it is employed gainfully for purely decorative effects and to provide atmosphere. In planning lighting for a room, it is wise to consider these three types. General lighting is provided by soft background lamps such as fluorescent lamps in a drapery valance. Local light glows from well-placed table or floor lamps and from suspended fixtures. Then, accent light, to highlight a special feature in the room, is supplied by recessed ceiling fixtures or spotlights. For atmosphere, colored bulbs may warm or cool a room to your taste.

The most important rule in placing lamps is comfort. To achieve comfort, the light must be placed at the correct height to avoid eyestrain and to give the best light. To help in the location of outlets for lamps in living rooms a lighting specialist has published a three-part formula: —

(a) In the corners, 27 inches from each wall.

(b) For rooms over 18 feet long, additional outlets 4 feet from each side of the centre line.

(c) Omit outlets that would come directly in restricted traffic lanes.

Of course, for safety's sake, switches inside the door of each room allow you to light your way wherever you wish to go. It is suggested, too, that one of the receptacles in the living room be provided with a switch.

Outdoor lighting is both functional and decorative. Entrance lighting beams a warm welcome to visitors and reverses the procedure for prowlers. It illuminates doorways, steps and walks for safety and convenience. Decorative lighting, too, shows off your home and landscaping while adding to your enjoyment of night-time outdoor life on your patio or terrace. Father may broil steaks on his electric barbecue late in the evening while yellow bulbs that discourage insects light his culinary task. ■

(Photo by courtesy of Canadian General Electric Co. Ltd.)



give electrical gifts for year-round better living!



You are sure to please everyone on your Christmas list when you give electric appliances. They make work easier . . . life happier . . . and they're designed for lasting, care-free service. There's such a wonderful variety of electrical gifts to choose from — toasters, frypans, steam irons, shavers, kettles, waffle irons, sandwich toasters, radios — just to mention a few. You'll always be remembered for the Christmas gifts that say

live better...ELECTRICALLY

the safe, clean, modern way!

(Sample advertisement — mats (2 col. x 14¼ inches) available to the associated municipal utilities in local "Live Better Electrically" campaigns.)



TEMPORARY BUT IMPORTA

During construction of the powerhouse s
Ontario Hydro's Silver Falls project, 30
northwest of the Lakehead, this Bailey Br
structure will facilitate access for the h
vehicles carrying equipment and materials
the new generating station.

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ONTARIO HYDRO NEWS

DECEMBER, 1958

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CHRISTMAS - 1958

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Commissioner



LT.-COL. A. A. KENNEDY
Commissioner



DR. OTTO HOLDEN
Chief Engineer



A. W. MANBY
General Manager





AS we pause this year to reflect upon the enduring significance of the Christmas message, we are soberly conscious of the international tensions that threaten the peace of the world. This realization, nevertheless, awakens within us a feeling of genuine pride and gratification that Ontario's Hydro enterprise has been most prominently associated, for many years, with great projects which exemplify Canada's steadfast efforts to follow the path of peaceful and fruitful progress. These achievements perpetuate and strengthen our ties of friendship with other nations. In this disturbed and apprehensive world, they also afford reassuring evidence that international differences can be successfully and readily resolved by men of goodwill.

Looking back on the events of the past year, we are keenly appreciative of the cordial relationships within and beyond the ranks of the Hydro "family." We look forward to 1959 as a year of even greater opportunities and widening concepts of service. In this spirit, we extend to the great host of Hydro associates our sincere greetings and our warmest wishes for a Merry Christmas and a very Happy New Year.

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CHRISTMA

Some say the Romans started h
season's greetings, but the En

THIS year Canadians again will exchange literally millions of Yuletide greetings in the form of Christmas cards of every size, shape and hue.

While no accurate figures on this avalanche of seasonal "wishes" are available, Canadian postmen will inform you that they represent the bulk of the mail during the pre-Christmas period. For instance, Toronto's daily mail clearings normally average three to four million items. But for two weeks or more before the festive occasion, the Queen City's daily volume swells to 22 million pieces. One United States authority estimates that our American cousins send out some two billion of these cards every year.

This custom of sending greetings seems to have originated even before the birth of Christ. Conceivably it could be traced to the hard-headed Romans, whose armor-clad legions carried their customs to the corners of the then-known world.

In celebrating "*Sol Invictus*" on December 25, pagan Roman officialdom maintained a practical outlook. To "keep in well" with their Emperor, the Roman officials sent "*strenae*" to the Imperator. *Strenae* originally were expensive gifts. Then, as the custom grew less popular, but the necessity for regal patronage remained, terracotta lamps and clay tablets, embossed with pictures of fruits, garlands or cornucopiae, were substituted. These bore such ancient Latin inscriptions as "Happiness in the New Year," — words that have a strangely familiar ring to 20th Century ears accustomed to hearing that there is "nothing new under the sun." Thus historians consider *strenae* may have been the dim and distant forerunners of the modern Christmas card.



SAMPLES of Roman "strenae", which are regarded by some historians as forerunners of the modern Christmas greeting card.

TERRACOTTA LAMP, decorated with figures representing the winged Goddess of Victory and the two-headed god, Janus. The clay tablet below was sent to the Roman Emperor Commodus.



(Reproduced through the courtesy of the Royal Ontario Museum)

Devotional Pictures

During the Middle Ages, the Germans, who pioneered in printing and the graphic arts, marked the feast of the

by Horace Brown

IS IN THE CARDS

om of sending

l a share in it too



THIS FIRST ENGLISH CHRISTMAS CARD AROUSED CRITICISM.

Christ Child by sending "Andachtsbilder" – devotional pictures or pictorial cards – to their friends.

These woodcut and copperplate engravings were often exquisite in both taste and workmanship. In these *"Andachtsbilder,"* the image of the child Jesus was usually accompanied by a brief text on a scroll, blessing the new year, and combining allusions to both Christmas and the New Year.

But the proper climate for the exchange of Yuletide messages among English-speaking peoples did not come until the middle of the 19th Century. In 1840 the late Queen Victoria introduced the Teutonic custom of setting up a fir tree at Christmas to please her Prince Consort, Albert. Charles Dickens, too, established certain lasting traditions during the same period with such memorable literary contributions as "A Christmas Carol"; "Pickwick Papers"; and other idealizations of the "turkey and plum-pudding" Christmas spirit.

In 1843, Henry Cole, who was later knighted and named as the first Director of London's Victoria and Albert Museum, commissioned John Callcott Horsley, R.A., to design a card and paint several copies, which he sent to friends as a mark of his esteem and favor. This card, reproduced elsewhere in this article, bore the words "Xmasse, 1843" in the right corner. As will be noted, the central panel of the card depicted a three-generation Victorian family drinking to the health of absent friends. The side panels, entwined with grapevines and leaves, pictured acts of charity: Feeding the hungry on the left, and clothing the naked on the right. (See next column.)



OTHER samples of Victorian greeting cards.

(By courtesy of the Central Reference Library, Toronto.)

Caused Outcry

This first English Christmas greeting card was destined to cause a furore not anticipated by either the distin-

(Continued on page 4)

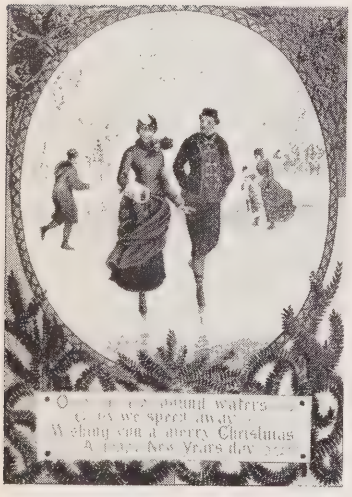
ORIGINAL concepts of Santa Claus often depicted him as a gnome with a flat, over-sized head.



EARLY CANADIAN Christmas cards invariably included a winter scene, still a favorite.







(By courtesy of Central Reference Library.)



guished Royal Academy artist or his patron. Three years later Felix Summerly lithographed 1000 copies of the card, which sold well, but were immediately assailed as "works of the devil" by professional and other protectors of the public morals. The apparently innocent centre panel of the card, designed to represent good cheer and fellowship, was attacked violently from the pulpits and in print as encouraging and condoning drunkenness.

Whether these criticisms made much impression is not known, but it is certain that the custom did not achieve general favor until the "60s" when other cards began to appear on the market.

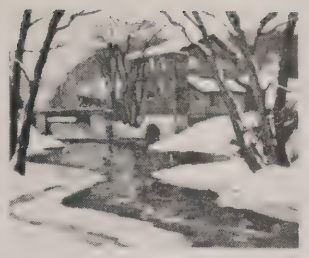
Introduction of the British "penny" postage system, two decades earlier, receives a great share of the credit for helping to popularize the custom. Up to that time, sending messages by mail was hazardous and expensive: hazardous because there was no guarantee that mail entrusted to the care of a courier would reach its destination — expensive because "postage" was based on what the courier estimated the recipient *not the sender* could or would be willing to pay. A simple letter, transported the length of the British Isles, might cost the addressee several shillings and even pounds.

When the half-penny rate for cards was inaugurated in 1870, Britishers took up the practise in earnest. Thus the snowball has gradually grown into the present-day avalanche.

The first North American Christmas cards are still regarded as the finest examples of the craft. They were the product of Louis Prang, of Boston, Mass., who had developed a multi-color lithographing process that could successfully reproduce copies of oil paintings. Prang began printing cards in 1874. Apparently not too certain of public reaction in the United States, he sent the first lot to England where they were received with enthusiasm. Thus encouraged, Prang invaded the American market the following year, and he dominated this field for the next 20 years.

Much of Prang's success was due to his appreciation of the *quality* required in art work. To secure this, he offered prizes up to $2,000, at a time when such a sum represented real money. Prominent artists of the era

REPRODUCTIONS of Canadian art share popularity with humorous themes this year.



TOM ROBERTS



WILLIAM WINTER



EMILY SARTAIN



ADRIAN DINGLE

FRANZ JOHNSTON





NORMAN ROCKWELL

(By courtesy of Wm. E. Coutts Co. Ltd.)

contributed to the Prang "line." When "cheap foreign imports," in his estimation, began to lower the standard he had established, Mr. Prang withdrew from the field with all the dignity of a man who tolerates nothing but the best. Today, of course, the policies of Louis Prang of encouraging the best in art and reproduction are standard with the leading publishing houses engaged in marketing Christmas cards.

Card Fashions

Fashions in Christmas cards, as in everything else, have progressed through several successive stages. Modern methods of reproduction have brought many improvements in the designs and execution. Then, too, there has been an increasing trend toward more humorous types of cards or those which satirize modern life.

Quite naturally Canadians, for many years, have shown a decided preference for winter scenes or those depicting such winter sports as skating and sleigh riding.

Perhaps the most striking example of change lies in the portrayal of St. Nicholas himself. The kindly but often austere figure of the good Russian bishop, who first went abroad anonymously at Christmas time to distribute his worldly goods to the poor, appeared on many of the early Christmas cards. But it was not long until Santa Claus supplanted Father Christmas, due to the Dutch influence. Artists in that period gave their imagination full rein. Often the Spirit of Christmas was represented by a sprightly little gnome with a somewhat flat, oversized head. Gradually he became rounder and fatter until the concept of the modern jolly Santa Claus came into being.

In the latter part of the 19th Century, when the Industrial Age had taken a firm hold, Santa Claus began to abandon his reindeer for more prosaic forms of transportation, such as puffy little locomotives with long stacks; high and open automobiles; the first crude biplanes and even balloons. Today, with the rare exception, St. Nick relies on his faithful reindeer to carry him on his annual jaunt from the North Pole. As far as is known, no card publisher has, as yet, had the daring effrontery to put him in or on a Sputnik.

But regardless of theme, the basic message of good cheer and best wishes remains the same. And so again this year, countless Canadians will be found consulting their lists, addressing envelopes and licking stamps in maintaining a tradition established by that first English greeting card, which expressed the enduring sentiment: "A Merry Christmas and a Very Happy New Year to You." ■

by DONALD WRIGHT



BEATING THE





OUTSIDE DECORATIONS, seasonal lighting and shorter daylight hours are among the major causes of the peak electrical loads experienced during the pre-Christmas period.



PEAK



BRIGHTLY-HUED ties, pink soap and nylon stockings are not the only kinds of merchandise that reach maximum popularity in the last few hectic shopping days before Christmas. About mid-December Ontario Hydro's power demands normally reach a peak which is not equalled or surpassed at any other time of the year. While no one has ever received a bundle of kilowatts done up in tinsel and red paper, there is still a very close relationship between peak load and the seasonal festivities.

Christmas tree lights, outside decorations and extended shopping hours combine with shorter daylight periods to establish December as the month of peak electrical consumption. But the precise instant is frequently determined by the weather. The peak is most likely to occur during a cold spell in this period when hard-working furnaces and additional space-heating equipment help to build up the load.

In 1957, the peak load of the Southern Ontario System occurred at 5.23 p.m., December 12. While the exact day may vary from year to year, the hour is always the same within a very few minutes. This is due to an overlapping of loads at that particular time of day, coupled with the extra seasonal demands previously mentioned. With the early sunset, lights go on in the residential areas before the industrial load drops off; the downtown sections of cities and towns remain a beehive of activity while supper is being cooked on thousands of electric stoves; and because it is too dark to play outside, the youngsters are dividing their attention between television and their brightly-lighted Christmas trees.

Ontario Hydro's load curve takes a very substantial dip on December 25, due to the almost complete industrial and commercial shut-down, but some of the municipal systems, with predominantly residential load characteristics, experience their yearly peak on Christmas Day. Christmas dinners are largely responsible in this instance, because it takes about half an hour's cooking time per pound to prepare turkeys for the table.

To the experienced eye, the daily load charts maintained by the Commission's Operations Division are as revealing as a diary for they show just when the citizens of Ontario turn on their breakfast coffee, arrive at work, stop for lunch, sit down to supper, relax with television and turn in for the night. A comparison of these charts will also indicate the wide disparity between the maximum and minimum daily peak loads for the year. In 1957, the December peak of the Southern Ontario System was 3,917,464 kilowatts, in contrast to the minimum weekday peak of 2,817,240 kw. which occurred at 11.35 a.m., July 31.

The "low" date is almost as stable as the high for it always falls between the latter part of July and the first few days of August when many industrial plants shut down for vacation periods. The domestic load is also at its lightest at this time, reflecting the exodus of vacationers from the urban centres.

No matter what factors or combination of factors may combine to tax the resources of an electrical utility,

(Continued on page 8)



EXTENDED shopping hours during December also contribute to the annual peak demands.

It takes planning to meet December's heavy power demands

each customer has the right to expect service at the flick of a switch. Providing the facilities to ensure this service, consistent with economy, is one of the most complex and challenging aspects of utility operation for it involves dealing with the future.

Estimates of Ontario Hydro's 1957 peak load were prepared five years ago by its Advisory Committee on Load and Capacity. This group is composed of Planning, Operations, Engineering, Consumer Service, Accounting and Treasury staff representatives. It now acts in an advisory capacity to the Engineer-in-Charge, Load Forecasts (see "Loads on His Mind" – page 10), who is Chairman of this committee. Since power requirements reflect the state of business in general, it is obviously impossible to arrive at precise figures, but these load forecasts do provide a basis upon which the Commission can establish the general size and nature of its vast expansion programs.

Plant Maintenance

Short term measures are also necessary to meet peak requirements. Whenever possible, plant maintenance is carried out during periods of low demands (namely the summer) so that equipment will be in top shape for the critical months of December and January. Sufficient generating capacity must be in operation to meet the forecast peak load, plus at least enough additional capacity to compensate for the possible loss of the largest generating unit in the system, possible errors in load forecasting, and other unpredictable contingencies. This "spinning reserve" is currently in the neighborhood of 150,000 to 200,000 kilowatts, which represents the combined spare capacity of all generating units actually in operation.

Hydro's interconnections with adjoining utility systems take on an added significance in periods of high demand. At all times they provide security against emergencies for all parties to the "tie-in," whereas their value is chiefly economical during the rest of the year. In effect, they represent reserve power, since all systems do not experience peak loads during the same period. Then, too, one of the systems is likely to have more spare capacity at one particular time than it actually requires. This is usually the result of long-term planning where temporary excess capacity may accrue from the completion of a major power project. In the long run, the advantages of an interconnection are almost equally shared among the participants.



"Whose bright idea was it to use the kind that when one goes out they all go out?"

Weather Factors

The task of planning for Ontario Hydro's December peak has been complicated in the past by a unique circumstance involving the weather. The Commission has a long-term contract with Hydro Quebec for power from its Beauharnois plant on the St. Lawrence River, but during the freeze-up, until a solid cap forms up river, several of the Beauharnois units must be shut down to avoid damage from slush ice, which cannot be screened out of the penstocks.



COAL is stock-piled at Ontario Hydro's thermal-electric plants in Toronto and Windsor in preparation for winter's increased power requirements.

"WHENEVER POSSIBLE, plant maintenance is carried out during periods of low demand so that equipment will be in top shape for the winter months."

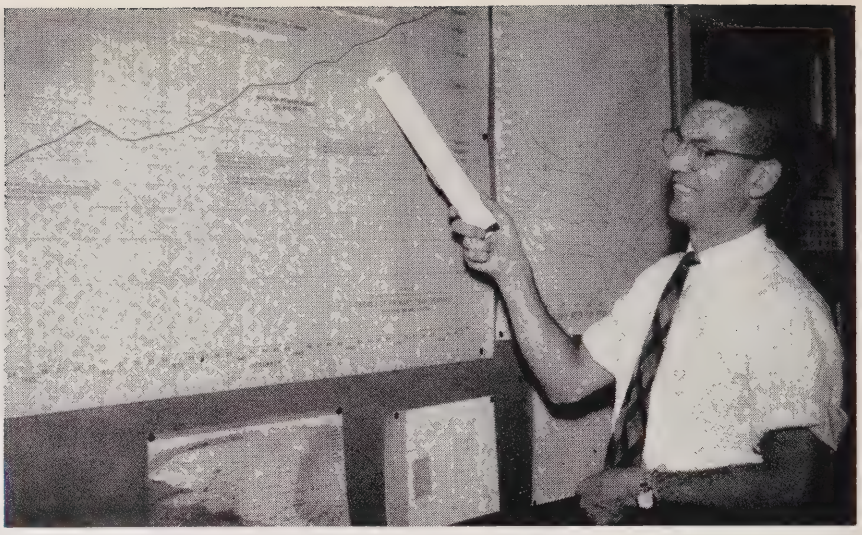
(Generating Floor, Sir Adam Beck - Niagara G.S. No.



Normally the loss of this power is not serious but when the freeze-up coincides with the peak load, the situation does become that much more critical. Hydro Quebec now has additional power available and this particular difficulty is not likely to arise in the future.

The degree of natural illumination, and, as stated previously, the temperature are the principal factors affecting the peak load. Light and temperature conditions (and wind conditions in the Niagara area) are forecast a day in advance as an aid in planning for short-range requirements. The forecasts are based on weather reports received by teletype from the Public Forecasts and Weather Information Office at Malton, and are, in turn, interpreted by the Commission's own meteorologist.

These "behind-the-scenes" activities are essential ingredients of the happiness and comfort of virtually every citizen of Ontario. For electricity is as much a part of the Yuletide season as candy-canes and mistletoe. Like the shopkeeper, Ontario Hydro must make certain that its stock is sufficient to meet the heaviest demand, and careful planning is the only way to ensure that the "shelves" will never be bare. ■



In his position Ontario Hydro's John Dobson has . . .

LOADS ON HIS MIND

This year, for the first time, Ontario Hydro's official load forecasts for all systems have been prepared by a small staff unit established specially for the job. Heading the unit in the position of Engineer-in-Charge, Load Forecasts, is John P. Dobson, formerly of the Operations Division.

In the past, load forecasts were prepared by the Load and Capacity Advisory Committee, which convened only when it was considered necessary to do a new forecast (usually once a year). This committee still exists, with Mr. Dobson succeeding I. K. Sitzer, Hydro's Director of Consumer Service, as Chairman. But it has become more of an advisory body, without the responsibility of actually preparing the forecasts.

When the new staff unit was set up earlier this year, the Commission anticipated three main advantages: greater continuity of action in the important function of load forecasting; specific responsibility, and simplification of direction from top management levels; and more opportunity for study of the effects of external influences on load trends.

Despite the new arrangement, the basis for load forecasts remains the same. The Commission's Regional Offices supply estimates of needs for all municipalities, rural operating areas and direct industrial customers within the region. The job of the staff unit, which is attached to the office of the Assistant General Manager-Administration, is to analyse these estimates, incorporate conclusions of its own, and produce the final overall estimates.

Some of the unit's own conclusions will derive from studies of the general economic situation, with special emphasis on likely expansion in big power-consuming industries and housing developments. A close watch will also be kept on new applications of electricity.

Continuity of Action

One result of this "continuity of action" will be an additional load forecast a year. This will take the form of a half-yearly review, updating information issued in the normal, yearly forecast. Both sets of predictions will be made on the basis of monthly estimates for two years and December estimates for the succeeding four years.

Both will also include peak load and energy forecasts. The latter, of course, are necessary for planning Operations Division activities, such as sales of surplus power and purchase of coal. Peak load forecasts are required for planning resources, such as the building of new plants; for planning maintenance of existing plants, and for estimating revenue.

Mr. Dobson has a combination of interests which qualify him to head the new forecasting unit. As a graduate electrical engineer, he has had experience in the technical aspects of the Commission's operations; and, as a qualified meteorologist, he is also well-acquainted with the vagaries of the weather, which exert an important influence on power loads. — *by E. B. Bolwell.*

INCREASING TEMPO

O.M.E.A. District 4 Annual Meeting spotlights "Live Better Electrically" theme

FOCUSING attention on the increasing tempo of the "Live Better Electrically" promotional and educational program, this year's annual meeting of O.M.E.A. District 4 covered a wide variety of topics ranging from nuclear power to industrial relations problems.

In welcoming delegates, representing many of the 33 member municipal electrical utilities, President Dr. V. S. Wilson said that they constitute an important segment of Ontario Hydro's Southern Ontario System. Supporting this statement, Dr. Wilson pointed out that District 4 municipalities served 42 per cent of the total customers in this system as of December 31, 1957, while their power requirements last year represented 43 per cent of the system's total demands.

As guest speaker at the banquet, which brought this year's gathering to a successful conclusion, Ontario Hydro Chairman James S. Duncan stressed the necessity of salesmanship and service in utility operations to meet the competition from other sources of energy, notably natural gas.

Dynamic Economy

Ontario's dynamic economy, he said, can utilize all types of energy. In fact the Commission is looking forward to the eventual possibility of using natural gas instead of coal in its thermal-electric generating plants.

"We would do so now if it were competitive in price." While welcoming competition, Mr. Duncan warned that the distribution of natural gas, backed by an aggressive sales promotion campaign, will progress at the expense of electrical utilities "unless we do something about it."

Since 1945 the Commission's capital expenditures have totalled approximately $1.6 billion, while the municipal utilities have added more than $191 million to their investment in plant and other facilities.

"It is our responsibility to make sure that energy sales are kept high enough to provide for the maximum use of these facilities. The alternative is that the operating costs of the municipalities are going to rise and an increase in rates will eventually follow."

Referring briefly to the importance of promoting electric water heater sales and home-heating installations, Mr. Duncan commended A.M.E.U. executive officers on their initiative in sponsoring the recent Institute of Electrical Heating (see page 26).

He voiced confidence that the en-

(Continued on page 12)

CLIMAXING the convention was an address by Ontario Hydro Chairman James S. Duncan.





SAMPLES OF "Live Better Electrically" advertising engage the attention of J. A. Blay, Hydro's Director of Information (left), and three Richmond Hill representatives (from left): W. A. Wagner, Verne C. Snider, and A. Brydon Ellis.



THREE DELEGATES, left to right: Norman Maughan, East York Township; Clare Carslake, Scarborough Twp., and A. G. Farnell, Georgetown, enjoyed a chat.

thusiasm generated at this meeting will carry into every municipality. Electric home-heating, he continued, "has great possibilities in Ontario."

In this optimistic vein, Mr. Duncan also pointed out that new electrical applications are being developed at the average rate of 1½ each year.

Power Resources

During his thought-provoking address, the Hydro Chairman also discussed Ontario Hydro's power resources. Turning first to the question of hydro-electric plants, he revealed that 28 hydraulic sites, with an estimated potential of some 1,800,000 kilowatts, are still available for development in Ontario. Studies are being conducted to improve extra high voltage transmission techniques that will make these remaining hydro-electric sites in more remote sections of the province economically feasible.

While Ontario Hydro is proceeding with plans to expand its capacity in coal-fired thermal-electric plants, it recognizes that it will be necessary to import increasing quantities of coal from the United States. To avoid large imports of coal that would eventually contribute to a further imbalance in trade with the United States, Ontario Hydro is now participating in Canada's nuclear power development program. It is anticipated that the cost of operating nuclear-electric stations may well be within competitive range of coal-fired plants by 1965 or 1966, Mr. Duncan observed. He lauded Canada's full-scale nuclear plant incorporating a reactor, fueled by natural uranium and moderated and cooled by heavy water as the most suitable to meet the particular requirements of Canadian electrical utilities.

"And I think we can take pride in the significant fact that the first Canadian large-size type of nuclear-electric station will be located in the Province of Ontario."

Other speakers during the afternoon business session directed their remarks to the question of promoting sales of electric energy. Chief among them was O.M.E.A. President Bert Merson, who declared that it is the individual duty of each municipality to not only maintain but to get new "electrical load." Municipal utility representatives can participate wholeheartedly in the "Live Better Electrically" campaign in the full confidence that they are selling "the most flexible source of energy in the world."

"If you built a house in a modern Ontario urban centre and failed to equip it with facilities for using electricity, you couldn't give it away."

In amplifying the "Live Better Electrically" theme, Mr. Merson called on J. A. Blay, Director of Information, to outline Ontario Hydro's 1959 advertising and publicity program. Mr. Blay pointed out that plans called for the placing of a series of advertisements in 37 Ontario daily newspapers and some 220 Ontario weekly newspapers. These advertisements are to cover a broad field of electrical applications in the home. Where appropriate, advertisements will coincide as closely as possible with seasonal trends in the use of large and small appliances.

The television advertising program will include a continuing series of one-minute spot announcements and twenty-second flashes over 15 Ontario television stations. 62 radio stations will also carry one-minute spot announcements based on the "Live Better Electrically" theme. "Time to Chat" five-minute radio programs featuring Anne Allan will again play an important role in stimulating the housewife's awareness of the many ways electricity contributes towards a richer life.

Of particular interest to delegates was Mr. Blay's announcement that a series of 25 new advertisements are being prepared in 600 and 400 line



MEMBERS of the re-elected executive, left to right: Amos Waites, Mimico; John McMechan, Bert Merson, Toronto; President Dr. V. S. Wilson, Etobicoke Township; A. O. Leslie, Scarborough Twp.; J. T. Armstrong, Georgetown; J. A. Orr, North York Twp., and Secretary-Treasurer, John Irvine, Etobicoke Twp., examine the shared cost of a proposed co-operative advertising program.

sizes for the use of municipal utilities. These, together with the series of 25 advertisements made available during 1958, will ultimately provide a selection of 50 advertisements for the local utility to choose from in supporting the 1959 campaign.

Complementing the newspaper, radio and TV advertising, will be 24-sheet posters, truck cards, school book covers, interior car and bus cards, counter cards, a campaign folder, postage meter slugs and drop-in ads, as well as a colored story-book for children.

The speaker also made reference to the Commission's sponsorship, in co-operation with the Ontario School Trustees and Ratepayers' Association, of an Ontario elementary and secondary schools public speaking contest (see *Ontario Hydro News*, November, 1958).

The "Live Better Electrically" theme will be further emphasized by portable displays designed for use at most major fairs and exhibitions next year, while an Ontario Hydro demonstration coach will carry the "message" at small fairs, exhibitions and other gatherings.

Assistance for Utilities

In concluding his remarks, Mr. Blay stressed that the facilities of the Information Division are at the disposal of any municipal utility requiring assistance in connection with public relations programs and related activities.

Other speakers included W. Ross Strike, Hydro's First Vice-Chairman, who stressed better customer relations as an important adjunct of a utility program for increasing sales of electric energy; C. B. C. Scott, Hydro's Assistant General Manager-Personnel; Harry Foy, Manager, Electric Service League of Ontario, and P. R. Locke, St. Thomas, Chairman of the Municipal Hydro-Electric Pension and Insurance Committee. In bringing greetings from the A.M.E.U., President J. A. Williamson said the recent Institute of Electrical Heating had set a new pattern for selling electrical "comfort living."

"In our approach to new or potential customers, or in fact to our existing customers, let us do so on the basis of the "package deal" – in other words let us offer every encouragement and guidance to them to equip their homes or premises entirely with electrical appliances – heating, cooking, water heating, air conditioning, etc."

New Decisions

Mr. Williamson also declared that the recent Institute sessions had underlined that the O.M.E.A. and A.M.E.U. must make prompt decisions to keep abreast of the demand for electric space-heating service and other new electrical applications.

"It is apparent," he said "that we must give consideration to the question of holding regional schools or demonstrations to provide guidance to utility employees, architects and builders on the technical problems inherent in these new applications."

Another highlight of the business session was the presentation of six resolutions by Committee Chairman W. E. Wright, Toronto Township.

Delegates endorsed a motion from the executive asking that the publication of figures relating to the adjustment of interim power costs be the responsibility of each local utility. They also approved an executive proposal that member utilities in District 4 be asked to join in a co-operative advertising program in 1959, not to exceed a cost of $50,000, and that each utility pay its share according to the ratio on the 1958 domestic revenue report. John McMechan, Toronto, was appointed as Chairman of a three-man committee to seek the approval of each utility and carry out this program.

A resolution presented by six "lakeshore" utilities (Bronte, Trafalgar Township, Toronto Township, Port Credit, New Toronto and Mimico) asking "that District 4 request the provincial association to take effective action to ensure that Hydro consumers be assured continuous service" was adopted.

Oppose Costing Method

Engendering spirited discussion was a resolution submitted by Etobicoke Hydro Commission asking for reconsideration of the method being used to assess municipalities to recover the cost of frequency standardization. The resolution, which also received endorsation, expressed opposition to Ontario Hydro's decision to assess all load, including new load, in the 25-cycle area at $5 a kilowatt until the cost is paid (which is now estimated to be in 1972), especially as load

(Continued on page 29)

THE BACHELOR'S DILEMMA

by Morley Callaghan

THE night before Christmas Harry Holmes, the dapper young executive, came home to his bachelor apartment near the university and found the janitor had put a turkey on the kitchen table. It was a fine big bird weighing twenty-two pounds, far too big for his small ice box, and tied to the leg was a note from the manager of his favorite restaurant congratulating him on winning their turkey raffle. Wondering when he had taken the ticket he thought, "Well, the devil must look after his own," and he telephoned his brother's wife who had invited him for dinner on Christmas Day. "Well, this year, for a change I'll provide the turkey," he said, feeling exuberant. "I've got it right here."

"Oh, Harry, that's a shame," she said. "We've got a turkey big enough for three days. It's in the refrigerator." And since there was no room in the refrigerator for his turkey, she had to disappoint him.

Soon he was smiling and indulging himself, anticipating the pleasure he would get giving the turkey to Tom Hill, his underpaid assistant who had just got married. Then he talked on the telephone to Tom, who had to explain his wife had bought a turkey that afternoon, and he was so apologetic and embarrassed Harry thought, "You'd think I was trying to get him to do something for me," and he felt amused.

He called three old friends. Two were out of town for the holiday; the other had won a turkey at a bowling alley. Then he remembered that two other friends whom he admired, sports columnists on the local newspapers, were accustomed to foregathering at this hour in a cafe on Bloor Street. With the turkey in his arms he took a taxi to the cafe, grinned jovially at the hat check girl who asked him to check the turkey, strode past her to the familiar corner table, laid the turkey before his astonished friends and invited them to toss for it. One telephoned his wife, the other his sister. Both had turkeys and crowded refrigerators. The hostile waiter glared at the turkey lying on the table. And Harry's friends, having stood him treat, began to make jokes. "I'm afraid," one said, teasing Harry and pretending to be in the theatrical business, "we have a turkey on our hands." It was all very jolly, and he laughed, too, but the fact was they didn't appreciate that he had thought of them, and he had to pick up his turkey and go home.

In the kitchen, standing beside the turkey, he felt irritated; it was as if his brother's wife and Tom and all his friends had joined together to deny him the satisfaction of pleasing them with a gift, and as he looked out the window at the lighted houses of his city of a million souls he suddenly felt discontented with his life which had been going so smoothly until he had to get a turkey cooked. "There's something the matter with the world when you can't give a turkey to anyone who knows you," he thought. "To the devil with it."

Then he tried to sell the turkey to the restaurant, but the manager refused to buy back a turkey he had given away. "Why don't you try a butcher?" he asked.

A butcher store a few blocks away on Harbord was still open, but the bald-headed butcher, pointing to his turkey-filled window, said, "Look what I have left, mister! I'll sell you one at half price." On the way home the big turkey seemed to take on weight, Harry's arms ached, and he was glad when he dumped it on the kitchen table. Exhausted, he lay down and fell asleep.

At the Christmas dinner at his brother's place, they were surprised to hear his turkey was still on his kitchen table, and he wondered why he felt ashamed. When he got home in the evening he stared uneasily at the naked bird. "It'll go bad," he thought and he sniffed. Picking it up he went out and began to cross Queen's Park. It had begun to snow. Wet dead leaves in the melting snow glistened under the park lights. Shifting the turkey from one arm to the other, he headed for a church along a side street. There he asked the white-haired man who answered the door, "Do you know anyone who would like a Christmas turkey?" He added apologetically, "It's late, I know."

"It's never too late, my son," the old man said. "I know a hundred poor families in the neighborhood who'll appreciate a turkey. Won't you give me your name?"

"It doesn't matter," Harry said awkwardly. And as soon as he felt the weight of the turkey being lifted off his arms he understood why he had felt ashamed at his brother's place. He hadn't been looking for someone who would appreciate a turkey. He had been looking for someone who would appreciate him.

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O.M.E.A. DISTRICT 7

URGES LEADERSHIP IN GOOD SERVICE

"THERE is a saying that people are known by the company they keep. It is also true that a company is known by the people it keeps."

This was one of the points made by W. Ross Strike, Ontario Hydro's First Vice-Chairman, when he addressed delegates at the recent annual fall conference of O.M.E.A. District No. 7. Mr. Strike was guest speaker at the conference luncheon held in the Canadian Legion Hall, Woodstock, and his subject was "Public Relations."

The field of public relations has been neglected in many business activities during the past 15 years, he said. This was probably due to the fact that a great demand for all types of goods immediately following the Second World War had not necessitated the "personal touch" in selling. The number of door-to-door salesmen had fallen off; sales people in stores were showing less interest in prospective customers.

"But because we in the electrical supply business are not alone in this lack of public relations is no reason why we should sit back and do nothing about it," Mr. Strike said. "Here is a chance for us to assume leadership in developing a sense of interest in other people — a community feeling."

Three Steps

The best way to start is to pay more attention to customer relations, he went on. This requires three steps: Commissioners must sell themselves on the idea first; staff must be trained next; and more personal contact with customers should follow.

Mr. Strike underlined the importance of training employees. He said that proper techniques of training would result in employees becoming so interested they would come up with their own ideas for improving customer relations.

To assist utilities in such training programs, Ontario Hydro is preparing a manual and some films, the speaker continued. One of their main objects would be to foster more initiative on the part of employees. "The increasing number of machines is stunting initiative," he stated. "It will be a tragedy if we keep on making machines to act like men and do not stop men from acting like machines."

There are an infinite number of ways of creating a more personal feeling between utilities and customers, Mr. Strike said. He offered one suggestion for handling new customers.

"A new customer should get the VIP treatment," he advised. "He should be introduced to the manager or his deputy, and given a detailed explanation of the contract he has just signed. He should be left with no doubts or misconceptions about what services will be included on his bill, and what period the bill covers. A five-minute discussion at this time can save hours of future headaches."

Mr. Strike concluded his address with the warning that good customer



WOODSTOCK'S youthful Mayor Charles Tatham extended a welcome to the delegates.



ONTARIO HYDRO COMMISSIONER, Lt.-Col. A. A. Kennedy (right) was noted renewing acquaintances with (left to right): J. J. Nadalin, David C. Todd and Chairman J. C. Smith, Beachville.

THERE'S a symbolic air about this photograph showing retiring President H. R. Henderson, Woodstock (right), holding the door for his successor, P. R. Locke, St. Thomas.



THREE St. Thomas P.U.C. representatives (left to right): Assistant Manager Frank Ford, Commissioners George D. Lang and William Allan arrive at the Canadian Legion Hall for the meeting.

relations are something that need constant attention. Sporadic efforts, he said, are not good enough.

Among several other Ontario Hydro representatives at the conference was R. M. Laurie, Manager of the Commission's Western Region. In a brief address, he warned the utility officials to be ready for many enquiries about electric space heating in the immediate future. He said his office has has already been confronted with a steady stream of questions since Ontario Hydro lifted the service charge on this type of heating.

Mr. Laurie predicted there will be "at least 400 installations of electric space heating in western Ontario by next year." He urged utility personnel to watch out for bad installations, and offered assistance from his office at any time.

Other speakers at the conference were Bert Merson, O.M.E.A. President; J. A. Williamson, A.M.E.U. President; Lieut.-Col. A. A. Kennedy, Ontario Hydro Commissioner, C. B. C. Scott, Hydro's Assistant General Manager — Personnel; Bryn Jones, Electrical Utilities Safety Association, and P. R. Locke, Chairman of the O.M.E.A.'s Pension and Insurance Committee.

Mr. Locke, St. Thomas, was later elected President of the district association. The remainder of the new executive comprises G. E. Brown, Aylmer, First Vice-President; S. M. Emery, Parkhill, Second Vice-President; H. R. Henderson, Woodstock, Immediate Past President. Campbell Calder, Q.C., London, Murray Logan, Thorndale, and Ken Anderson, Tillsonburg, were named as Directors. The new Secretary-Treasurer is W. J. Underhill, Manager, St. Thomas P.U.C. — *by E. B. Bolwell.*

PROUD MOMENT FOR AJAX



AJAX HYDRO'S new office and service building made a bright spot in the early-evening darkness as guests and citizens gathered to witness the formal inauguration.



HON. R. W. MACAULAY, Ontario Hydro's Second Vice-Chairman (left), and Ajax Chairman Roger Conant shared the pleasant duty of cutting the ribbon during the ceremony.

ONE of the youngest members of the Hydro family of municipalities donned the trappings of maturity, October 23, when the handsome new office and service building of the Ajax Hydro-Electric Commission was officially opened.

Hon. R. W. Macaulay, Q.C., M.P.P., Ontario Hydro's Second Vice-Chairman, officiated at the ribbon-cutting ceremonies, which were attended by more than 100 guests from Ajax and neighboring communities.

In a brief address prior to declaring the building officially open, Mr. Macaulay outlined the short but interesting history of Ajax. "Before 1939," he said, "this area was mainly farmland, but the construction of a munitions factory to meet the needs of our fighting forces led to the growth of a war-time housing development."

Due to the efforts of "enterprising and visionary citizens," the speaker said, Ajax avoided the "ghost-town"



AJAX HYDRO representatives (left to right): Manager-Secretary J. K. Sanders, Chairman Conant, Mayor W. A. Parish, and Vice-Chairman E. D. Steer admire two gifts presented to the utility.



FOUR GUESTS, Architect T. W. Beddall (left) and J. J. Gascoigne, the builder, and their wives enjoy coffee served by Mrs. J. K. Sanders.

YOUNG UTILITY INAUGURATES OFFICE AND SERVICE BUILDING

fate of similar centres once the demand for war materials was over. Instead, it had grown to a thriving community with 65 industries and a population in excess of 8,000. He point out that the Improvement District of Ajax was organized in 1951. It was served by Ontario Hydro as a local system until 1956 when the voters showed their faith in the community by approving the purchase of the system.

Power Consumption

In recounting the part electricity had played in the amazing development of Ajax, Mr. Macaulay said that from 1952 to 1957, the industrial consumption of electricity had increased by 249 per cent. During the same period, the number of residential customers had increased by 70 per cent and their electrical requirements by 162 per cent.

Noting the absence of overhead wiring, Mr. Macaulay said that the development of Ajax had followed a master plan, installing a local distribution system that was regarded as a model. He said that the clean architectural lines and modern appearance of the new building spoke for themselves.

The guests were welcomed by Chairman R. G. Conant, who reviewed some of the more significant achievements carried out in the 2½-year-period since the Hydro system was acquired. Among them he mentioned completion of a new substation, extensive street lighting expansion, and the purchase of a two-way radio system. He considered it particularly gratifying that, in the light of these costly improvements, it had been possible to implement substantial rate reductions in 1957. Referring to the new headquarters building he said "we are ready for expansion, however great and however quickly it may come."

Mayor W. A. Parish lauded the Hydro commission on "completion of the first municipal building ever constructed in the Town of Ajax." His praise was echoed by E. G. Gurnett, Manager of Ontario Hydro's East Central Region, who described the new centre as a symbol for the future and a great credit to the Ajax utility. Others participating in the ceremonies included T. D. Thomas, M.P.P.; E. D. Steer, Vice-Chairman; J. K. Sanders, Manager and Secretary, and former Mayor K. Smith. Reverend T. R. Norman performed the dedication.

Tour Premises

Following the official opening, guests were conducted on a tour of the premises. Situated on a prominent site at the south end of the giant Ajax shopping centre, the new office and service centre provides the best possible working conditions together with all the facilities required for the efficient operation of a modern utility. The building takes advantage of the natural land contours so that the basement, containing the stores area and the work preparation room, is accessible from the rear at truck platform level. The boiler room, electric service room and foreman's office are also located on this floor.

The general office, board room and employees' lounge are on the ground floor. The spacious, two-story lobby, faced entirely in glass, is designed to accommodate a staircase should an additional floor be required. Provision has also been made for a meter room and a drafting office on this level.

The new Ajax utility building is one of the few in Canada that uses electric energy as the sole source of heat. It has a low-pressure, hot-water system with baseboard radiation and automatic indoor-outdoor thermostatic control. Water is heated by means of six, 20-kilowatt units operating at 208 volts. The system will maintain the necessary heat level for four hours without power so that off-peak energy may be utilized. — *by Don Wright.*

HARROW CONFERENCE

EVEN the open season for pheasant shooting in Essex County this year failed to deter municipal utility representatives from attending the annual meeting of O.M.E.A. District 8.

Held at Harrow, one of Essex County's principal urban centres, the annual gathering was featured by an enthusiastic discussion of Hydro problems and a registration of more than 100 delegates.

"It is meetings such as these," President Roy C. Warwick remarked in his opening address, "which typify the co-operative efforts of the O.M.E.A. and the A.M.E.U."

Major items on the business agenda included the presentation and subsequent adoption of two resolutions dealing with municipal borrowing methods and with regulations governing the sale of power. The first, submitted by the Township of Sandwich West Hydro System, called on Ontario Hydro to establish a fund from which associated municipal electrical utilities might borrow for capital expenditures.

The resolution took into consideration Ontario Hydro's success in borrowing substantial sums of money at favorable interest rates, whereas some municipal systems find it difficult to raise funds at similar rates. It was further pointed out that the total sum borrowed annually by all municipal utility systems is only about three per cent of the amount borrowed annually by Ontario Hydro.

The resolution was quickly endorsed. While commending the motion, Dr. V. S. Wilson, Chairman of Etobicoke Hydro and President of O.M.E.A. District 4, cautioned that objections would, undoubtedly, be raised by some municipal authorities on the ground that such a procedure poses a threat to local autonomy.

Rate Revisions

The second resolution, presented by the Sarnia Hydro-Electric Commission, petitioned Ontario Hydro "to revise its whole structure of regulations governing the sale of power, with special attention being given to the elimination or modification of all penalties such as: Diversity in Power Consumption, Peak Load, Load Factor, Power Factor, etc." The resolution further proposed that a serious study be made to effect "a drastic improvement in the rates and procedure of operation regarding Hot Water and Panel Heating."

In submitting this resolution, J. T. Barnes, Sarnia, contended that certain restrictions and penalties had been imposed with regard to the use of electricity, and that some restrictions are now outmoded. He termed them a "threat to Hydro" in the face of mounting competition from natural gas. Mr. Barnes then outlined in detail those features of existing customer rates, which he considered to be most undesirable.

Official greetings from Ontario Hydro were tendered by W. Ross Strike, Q.C., First Vice-Chairman, who stressed good customer relations at all levels of utility operation. Ontario Hydro Commissioner D. P. Cliff, O.M.E.A. Secretary-Treasurer, expressed his admiration for those members of O.M.E.A. District 8, who have progressively encouraged the present trend toward greater equalization of rates in the Hydro system. He described the progress that had been made in this direction, predicting that further important developments will soon be forthcoming. Lt.-Col. A. A. Kennedy also represented the Commission at the Harrow meeting.

Pension and Insurance

Delegates were brought up to date on the status of the Pension and Insurance Plan by O.M.E.A. President Bert Merson. He emphasized that the plan was designed to serve the utility with one or two employees just as effectively as the largest organization, and reminded those municipalities, which are not yet members, that cost quotations can readily be obtained without obligation.

Electric space heating was described as the final answer to the all-electric home by A.M.E.U. President J. A. Williamson. He expressed confidence that developments in this field will greatly influence the size and character of future loads.

The full slate of officers was returned for a second term, with Roy C. Warwick as President. Delegates voted to meet next year at Ridgetown.

— by Donald Wright.



O.M.E.A. DISTRICT 8 DELEGATES MEET AT HARROW

A ONE-MAN Chamber of Commerce, P. A. Lawson, Hydro's Harrow Area Manager (right), offers floral proof of the district's balmy climate. Left to right are: J. C. Barr, Sarnia; J. A. Bannister and F. G. Tigwell, Point Edward; R. A. Holliday, London; J. T. Barnes, Sarnia, and Mr. Lawson.



THIS GROUP, left to right: Mayor L. A. Hamilton, Amherstburg; Reeve George Hayes, St. Clair Beach; Jack Anderson and J. L. Graham, Leamington, and W. S. Woof, Amherstburg, was noted relaxing between convention sessions.



MEMBERS of O.M.E.A. District 8 re-elected the 1958 executive for another term. Front row, left to right: T. C. Odette, Tilbury, 2nd Vice-President; President R. C. Warwick, and J. T. Barnes, Sarnia. Second row: W. B. Ford, Blenheim, Secretary-Treasurer; Howard Heaton, Harrow, and T. A. Cada, St. Clair Beach, 1st Vice-President.

Today He makes his entrance here,
But not as monarchs do.
No gold, nor purple swaddling-bands,
Nor royal shining things;
A manger for his cradle stands,
And holds the King of Kings.

ISSAC WATTS — *Shepherds, Rejoice*

Not believe in Santa Claus! You might as well not believe in fairies . . . Nobody sees Santa Claus but that is no sign there is no Santa Claus. The most real things in the world are those which neither children nor men can see. No Santa Claus! Thank God! he lives and lives forever.

FRANK CHURCH — *Is There a Santa Claus?*
New York Sun, September 21, 1897.

The night that erst no name had worn,
To it a happy name is given;
For in that stable lay new-born
The peaceful Prince of Earth and Heaven,
In the solemn midnight Centuries ago.

ALFRED DOMETT — *A Christmas Hymn*

At Christmas I no more desire a rose
Than wish a snow in May's new-fangled mirth;
But like of each thing that in season grows.

SHAKESPEARE — *Love's Labour's Lost*

Ah, friends, dear friends, as years go on and heads get gray, how fast the guests do go!
Touch hands, touch hands, with those that stay.
Strong hands to weak, old hands to young, around the Christmas board, touch hands.
The false forget, the foe forgive, for every guest will go and every fire burn low and cabin empty stand.
Forget, forgive, for who may say that Christmas day may ever come to host or guest again.
Touch hands!

WILLIAM HENRY HARRISON "ADIRONDACK" MURRAY
— *John Norton's Vagabond*

When though upon his hoary head
Have fallen many a winter's snow?
His wreath is still as green and red
As 'twas a thousand years ago.
For what has he to do with care!
His wassail-bowl and old arm-chair
Are ever standing ready there,
For Christmas comes but once a year.

THOMAS MILLER — *Christmas Comes but Once a Year*

We hear the beating of wings over Bethlehem and a light that is not of the sun or of the stars shines in the midnight sky. Let the beauty of the story take away all narrowness, all thoughts of formal creeds. Let it be remembered as a story that has happened again and again, to men of many different races, that has been expressed by many different names. Time and space and language lay no limitations upon human brotherhood.

New York Times, December 25, 1937.

Bright shines the sun across the drifts,
And bright upon my Christmas gifts;
They brought Him incense, myrrh and gold,
Our little Lord who lived of old.

MARJORIE PICKTHALL — *A Little Child's Song of Christmas*



CHRISTMAS THO

Heap on more wood! — the wind is chill;
But let it whistle as it will,
We'll keep our Christmas merry still.

SIR WALTER SCOTT — *Marmion*

A cattle manger was sufficient service that first Christmas. Now it is grown into hospitals and refuges for children, and schools and unpaid works of mercy and enlightenment ranging in ever-widening circles through the world. And from these have flowed the sciences and social insight and good will that steadily beat back the frontiers of ignorance, evil and distress. Beginning like a silver rill, that first Christmas has flowed through lurid ages and dark ages, through centuries of renaissance and generations of discovery, broadening as it ran, until now its oceanic waters touch every shore of every interest of mankind. Is that Christmas over?

— W. J. CAMERON

Our souls are like the sparrows
Imprisoned in the clay;
Bless Him who came to give them wings,
Upon a Christmas Day.

ELIZABETH STUART PHELPS WARD
— *The Clay Sparrows*

Just for a few hours on Christmas Eve and Christmas Day the stupid, harsh mechanism of the world runs down and we permit ourselves to live according to untrammelled common sense, the unconquerable efficiency of good will. We grant ourselves the complete and selfish pleasure of loving others better than ourselves.

CHRISTOPHER MORLEY — *The Preparations*

Everywhere, everywhere, Christmas tonight!
Christmas in lands of the fir tree and pine,
Christmas in lands of the palm tree and vine;
Christmas where snow-peaks stand solemn and white,
Christmas where cornfields lie sunny and bright.

PHILLIPS BROOKS — *A Christmas Carol*

JGHTS



And there were in the same country shepherds abiding in the field, keeping watch over their flock by night.

And, lo, the angel of the Lord shone round about them: and they were sore afraid.

And the angel said unto them, Fear not: for, behold, I bring you good tidings of great joy, which shall be to all people.

For unto you is born this day in the city of David a Saviour, which is Christ the Lord.

And this shall be a sign unto you; Ye shall find the babe wrapped in swaddling clothes, lying in a manger.

And suddenly there was with the angel a multitude of the heavenly host praising God, and saying,

Glory to God in the highest, and on earth peace, good will toward men.

ST. LUKE 2:8-14



AERIAL view of Toronto Hydro-Electric System's main office on Carlton Street.

Toronto Hydro Institutes Appliance Sales Campaign

An extensive program to promote the use of electricity in the City of Toronto and the Town of Leaside has been announced by the Toronto Electric Commissioners.

Under the plan, the Toronto Hydro-Electric System will provide financing for existing and new customers wishing to purchase major electrical appliances (on a time repayment plan) from radio, television and appliance dealers, as well as from the Toronto Hydro Shop.

Hitherto the Toronto Hydro Shop extended credit privileges to approved customers, repayment being made with their regular two-month electrical bills. As a means of creating renewed dealer interest in the sale of electrical appliances, Toronto Hydro will also purchase appliances from dealers, paying the retail cash price, less any trade-in allowance. A deduction of five per cent of the retail cash price of any appliance costing $5.00 or more will also be made to cover the risk of repossession. Toronto Hydro must approve a customer's credit and the selling price of the appliance before payment to the dealer is authorized.

The period of repayment will be governed by the amount of each sale. On purchases ranging from $100 to $149.99, a maximum repayment period of 18 months will be allowed; from $150 to $199.99 – 24 months, from $200 to $299.99 – 30 months. A maximum period of 36 months will be permissible on sales of more than $300. In addition customers will pay a carrying charge of six per cent a year for each year of the term of repayment.

The Toronto utility's keen participation in all phases of the "Live Better Electrically" program is further reflected in a letter recently sent to all employees of the Toronto Hydro-Electric System by Chairman Bert Merson.

The letter reads as follows:

"Your Commissioners take this means of drawing to your attention the 'Live Better Electrically' program now being sponsored across Ontario.

"The 'Live Better Electrically' program is essentially an educational and publicity campaign to acquaint our customers with the many advantages of electricity, placing emphasis on its low cost, cleanliness and safety. It is anticipated that tangible results of the program will be reflected in increased use of electricity by the householder, thereby protecting the investments of the municipal electrical utilities and enabling them to continue to maintain low rates.

"To publicize the advantages of electrical living, use is being made of the press, radio, television and space advertising facilities, as well as displays, demonstrations and other forms of educational programs. As a Hydro employee, your neighbours and others may reasonably expect you to be familiar with the program and question you about it, thus affording you an opportunity to actively promote the advantages of electrical living. In this way and by example in making full use of electrical appliances in your home, you can make a substantial contribution to the success of the program to the benefit of the Hydro enterprise as a whole.

"If, for lack of effort on our part, Toronto sells less electric energy, then the loss of revenue affects all aspects of the System's operation. Whatever the result, especially if it be of an adverse nature, is the concern of every employee of our System. Therefore, it is in the interest of each of us to make sure that people know they can 'Live Better Electrically'."

THERE'S A SONG IN THE AIR

There's a song in the air!
There's a star in the sky!
There's a Mother's deep prayer,
And a Baby's low cry!
And the star rains its fire while the beautiful sing,
For the manger of Bethlehem cradles a King.

There's a tumult of joy
O'er the wonderful birth,
For the Virgin's sweet boy
Is the Lord of the earth.
Ay! the star rains its fire while beautiful sing,
For the manger of Bethlehem cradles a King!

In the light of that star
Lies the ages impearled;
And that song from afar
Has swept over the world.
Every hearth is aflame, and the beautiful sing,
In the homes of the nations that Jesus is King!

We rejoice in the light,
And we echo the song
That comes down through the night
From the heavenly throng.
Ay! we shout to the lovely evangel they bring,
And we greet in His cradle our Saviour and King!

by Josiah G. Holland

WHAT CHILD IS THIS?

What Child is this, Who, laid to rest,
On Mary's lap is sleeping?
Whom angels greet with anthems sweet,
While shepherds watch are keeping?

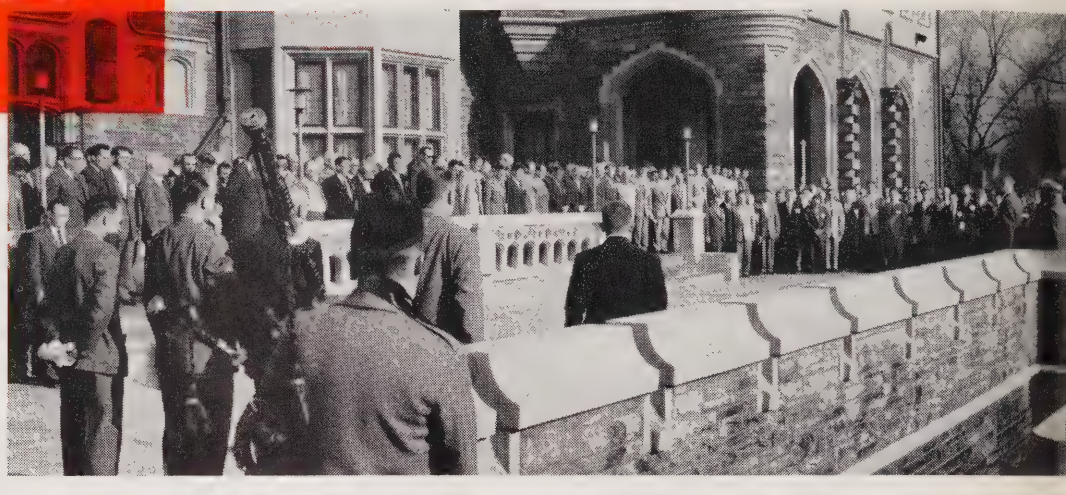
Why lies He in such mean estate,
Where ox and ass are feeding?
Good Christian, fear; for sinners here
The silent Word is pleading;

So bring Him incense, gold and myrrh,
Come peasant, king, to own Him;
The King of kings, salvation brings:
Let loving hearts enthrone Him.

by William C. Dix

ELECTRIC HEATING FORUMS

PAUSING in their deliberations, delegates gathered on the balcony of Toronto's Casa Loma for a Remembrance Day ceremony.



Historic A.M.E.U. "Institute" draws capacity registration

AMID the mediaeval surroundings of Toronto's Casa Loma, Ontario utility and other electrical industry representatives sat down recently to discuss the strictly 20th Century topic of electric heating.

After appropriate greetings from A.M.E.U. President J. A. Williamson, O.M.E.A. President Bert Merson and Ontario Hydro's First Vice-Chairman, W. Ross Strike, the capacity audience of 250 or more turned to solid and serious consideration of the technical problems and the widening opportunities for load-building inherent in this comparatively new electrical application.

In his keynote address, Harry Hyde, Assistant General Manager of the Toronto Hydro-Electric System and Chairman of the A.M.E.U. Engineering Section Board which organized the gathering, outlined details of the program. He explained that the agenda for the first A.M.E.U. Institute of Electrical Heating had been divided into two sections: (A) Insulation (B) Electric Heating. In stressing the importance of a thorough understanding of both subjects during the meeting, he lauded the co-operation of the industrial representatives who prepared and delivered most of the 15 technical papers and assisted at an evening question-and-answer session.

The enthusiasm manifested by the participants reflected their confidence that home heating represents another link in the growing chain of electrical applications. And so it was fitting that the historic, two-day "Institute" should produce a new concept of electrical utility operation. The new approach became evident in the theme-setting address by William Hollar, Detroit Edison Company, in which he declared:

"We have got away from selling just electricity – today we are selling a higher living standard, a new way of life, a new concept of living better electrically – from the attic to the basement."

(In view of the wide interest expressed in this subject by municipal utility representatives from all sections of the province, the January, 1959 issue of Ontario Hydro News will contain summaries of several important papers presented during this meeting – The Editor.)



H. R. SOUTAR, Windsor (second from right), was appointed Chairman of the A.M.E.U. Electrical Applications Committee during the meeting. Others in the group (from the left) are: Ray Pfaff, St. Catharines; Basil Needham, New York; Program Chairman Harry Hyde, Toronto, and David Markel, Buffalo.



DURING a coffee "break," four Institute "pupils" (left to right): Roy Demerling, Toronto; C. E. Crease, Barrie; Ernest Dent, Orono, and John Lightbody, Lindsay, discussed the possibilities of electric heating.

Western Area Managers Join Contractors to Look at the Future in Space Heating

"We may not have a better mouse trap but we have something just as effective in electric space heating," R. M. Laurie, Manager of Ontario Hydro's Western Region, stated recently. He was speaking at a recent space-heating forum in London, during which he indicated that the "world has been beating a path to Hydro's door" since the service charge for this type of electrical installation was removed earlier this year. **(Ontario Hydro News — July-August, 1958.)**

He predicted that several hundred homes in the southwestern part of the province will be equipped with electric heating facilities within the next year or so. Thus he described the forum as only the "first step" in an educational program designed to acquaint Western Region personnel with all aspects of the important new development. Local public interest has been so great, he continued, that already it has been necessary to appoint a regional staff specialist in this field.

The response to the special meeting, held in conjunction with a two-day Area Manager's conference, supported Mr. Laurie's optimism. It was attended by an enthusiastic group of electrical, building and heating contractors, in addition to the area managers, and it featured a display of the latest electric space heating equipment set up by some of the leading manufacturers.

The principal speaker at the meeting was P. R. Dwyer, electric heating specialist from the Detroit Edison Company. Mr. Dwyer described the tremendous strides made by the electric heating industry in the United States in general, and he outlined the methods used and the degree of success achieved in this field by his own utility in the last few years.

He pointed out that over 350,000 homes in the United States are now electrically heated and that the number is growing rapidly. He said that 50 per cent of all home heating installations being made in some of the milder areas are electrical. This trend is spreading to the northern states with the growing knowledge of insulating requirements.

Of 1,200 electric space heating installations made in the Detroit area, the speaker said that only five are not completely satisfactory and he attributed this to inadequate insulation. His company, he said, encourages all types of electric heating methods, but the direct, baseboard type has accounted for 85 per cent of the installations made so far. He expressed the contention that electric space heating should be sold on its merits, and that its advantages more than outweigh the edge in operating costs enjoyed by conventional heating methods.

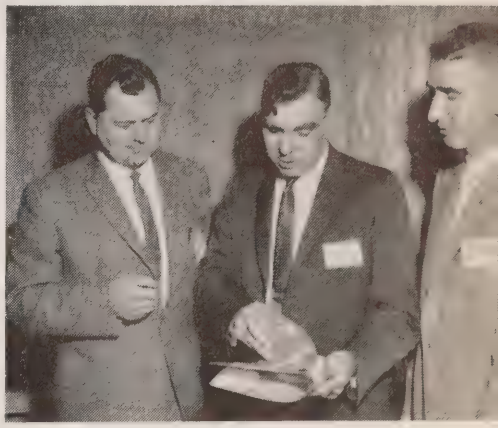
To illustrate the versatility of electric heating, Mr. Dwyer showed slides of actual installations in the Detroit Edison service area, including motels, garages, office buildings, boats, house trailers and factories, as well as homes and apartments. He manifested particular enthusiasm for electric heating in schools and churches, which were occupied for relatively short periods during the week. The speaker drew attention to the big potential market represented by such supplementary applications as recreation rooms, dens and extra rooms.

Mr. Dwyer also described some of the plans Detroit Edison is making for

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FEATURING the Western Region's forum was a display of electric space heating equipment. Here R. W. Gramlow (kneeling) explains details of one type of installation to (left to right): K. G. Phoenix, West Lorne ROA; Robert Kennedy, regional Water Heating Supervisor, and G. C. Allen, Sarnia ROA.



KEY FIGURES in organizing the first regional demonstration, Gordon McHenry, Consumer Service Engineer (left), and W. L. Scott, the new regional Space Heating Supervisor (right), were noted in conversation with the principal speaker, P. R. Dwyer, Detroit.



ANOTHER TYPE of equipment, demonstrated by K. G. Winch (centre) draws the attention of K. G. Cowell, Oil Springs ROA (left), and R. M. Laurie, Manager of the Western Region.



LET'S CHAT



with Lois Hurst of Ontario Hydro's Anne Allan Homemakers' Service

TRADITIONALLY Christmas is a family festival. Preparations have been under way for weeks and a superb dinner climaxes this day of joy and good will.

This year many people are fortunate indeed to have a long Christmas holiday. After the rush and excitement preceding the Christmas season there is apt to be a "let-down" feeling. Let's chat about a hearty, but leisurely breakfast to brighten the prospect of "tidying up" on December 26.

A substantial breakfast gives a good start and a feeling of well-being. Skipping or skimping on breakfast means you have the "gone feeling" at eleven o'clock and you are tempted to over-indulge at noon. It is especially important not to miss your fruit juice and whole grain cereal as it is unlikely you will be eating other foods later to make up for the nutrients that juices and cereals contain.

Breakfast need not take long to prepare. Just plan a little ahead of time. You can wake up with aroma of freshly percolated coffee in the air if you remember to set the timer on your electric range and plug in your automatic coffee-maker the night before. Fruit left out for the children will stave off their first pangs of hunger until Mother has breakfast on the table.

For fast meal preparation don't scorn the use of canned food and ready-to-cook mixes. Their convenience usually compensates for the extra cost. With a little imagination you can make variations to give them your own special touch.



Here are some suggestions for the post-Christmas breakfast:

Orange and Grapefruit sections
Rolled Oats with Raisins
Sausages rolled in Pancakes,
Hot Applesauce
Toast Maple Butter
Coffee or Mocha Hot Chocolate

This menu is much more easily prepared by using automatic electrical appliances – coffeemaker, toaster, frypan and griddle as well as the faithful electric kettle and mixer.

Canned orange and grapefruit sections are a refreshing change from juice. Garnish with a gay poinsettia made by cutting a red grape or maraschino cherry (starting from the stem end), and spreading out the six "petals" thus produced.

"Instant" oat cereal is a wonderful boon in making hot porridge these cold mornings. Use your electric kettle to boil the water speedily. Stir the instant cereal into boiling water, simmer for just 60 seconds, remove from the heat and let stand for 5 minutes. That is all there is to it, and furthermore the cereal does not stick to the pan! Raisins added to the porridge please the children and give a party air.

While the cereal is standing, the pancake batter may be prepared. Some modern ranges have a built-in-heat-controlled griddle. However, portable automatic griddles and frypans can be taken right to the breakfast table to make the pancakes. "Brown 'n serve" sausages are ready to eat after three minutes in the electric frypan. Simply roll up each sausage in a pancake. Spoon on hot applesauce as you serve them. Mmm, good eating!

An automatic electric toaster at the table gives piping hot toast, done to perfection. For those who find it difficult to keep up with the family's appetite for toast, a three-slice model is on the market.

Steaming mugs of Mocha Hot Chocolate climax this hearty meal. For six servings use:

1 quart milk,
¾ cup instant chocolate powder,
¼ cup instant coffee,
¼ teaspoon cinnamon.

Heat in a double boiler or automatic saucepan set at 200°. A quick beating will put a froth on the milk, which helps to prevent a skin forming. A portable electric mixer with its stand near the range is so handy for little jobs such as this.

If there are no early-waking youngsters in the household, the first meal on December 26 will probably be "brunch." Brunch is that meal which is too late to be breakfast and too early to be lunch. In this case

(Continued on page 29)

Orillia Pushes Appliance Sales

Orillia Water, Light and Power Commission recently concurred in a proposal to participate in a local advertising program, designed particularly to increase the sale of electric water heaters in Orillia homes and other premises. The local utility will enlist the co-operation of merchants in promoting electrical appliance sales with special emphasis on the water heaters.

Manitoulin Island Reserve Welcomes Hydro Service

Residents of the Sheshegwaning Indian Reserve will cook their Christmas dinner with electricity this year. One of the last outlying sections of Manitoulin Island to receive Hydro service, the Reserve includes 13 farms, four hamlets, the Indian Day School and the Roman Catholic Church who are now Ontario Hydro customers, being served through the Manitoulin Operating Area.

Horsepower Is Out At Orillia Station

There's still plenty of horsepower left at Orillia Water, Light and Power Commission's Swift Rapids generating plant so the Orillia Commissioners recently approved General Manager Stuart Walkinshaw's recommendation that a 12-year-old horse be sold and the animal's wood-hauling duties at the plant taken over by a truck.

INCREASING TEMPO

(Continued from page 13)

in existing 60-cycle areas is not so assessed.

Speaking to the motion, Dr. Wilson (who is also Chairman of the Etobicoke Commission) pointed out: "Etobicoke estimates that under this method of assessment they will be asked to contribute a minimum of $15 million more than the actual cost of converting customer-owned equipment in our municipality."

The resolution will be submitted to the A.M.E.U. and O.M.E.A. Power Cost Committee for further study and the presentation of a report at a future general meeting.



FIRST PRIZE FLOAT

OTTAWA Hydro-Electric Commission is rightly proud of its entry in this year's Central Canada Exhibition parade, which carried off first prize in its class. Emphasizing the theme of horsepower, the float was graced by four attractive young members of the Ottawa Hydro staff, including the two visible in the accompanying photograph: Miss Sandra Petrie (left) and Miss Marion Bishop. Miss Shirley Mills and Miss Paulette St. Jacques waved greeetings to the crowd from the other side of float. Ottawa Hydro driver, William Prosser, piloted the display along the parade route, but managed to keep well-obscured as did Project Engineer Clare Campbell, who handled all arrangements for the novel float.

Delegates also gave assent to a proposal from East York Hydro-Electric Commission that Ontario Hydro regional offices notify all associated municipal utilities within its jurisdiction when an individual utility makes any change in its rate structure.

Bill Collections

A resolution from Ajax Hydro-Electric Commission, calling for amendments to The Power Commission Act and ancillary acts to enable and authorize municipal commissions to collect and enforce accounts on behalf of other municipal commissions received approval.

Reflecting members' satisfaction with executive stewardship during the year, the report of the nominating committee called for re-election of 1958 officers, which won unanimous consent of the delegates.

– by the Editor

LET'S CHAT

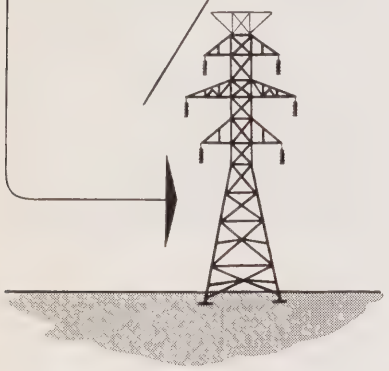
(Continued from page 28)

our breakfast can be a little more lunch-like. Instead of using sausages, fill the pancakes, before rolling up, with diced left-over turkey heated in condensed mushroom soup and garnish with cranberry sauce.

In 1959 the Hydro Homemaker's Service resolves to bring you many household hints and trends in electrical living, and that is a resolution we promise not to break.

Merry Christmas to all and to all, good eating!

ALONG HYDRO LINES

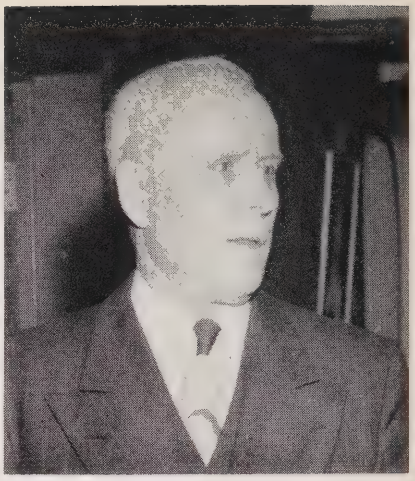


Prominent Cottam Citizen Passes

William Poulter, Commissioner of Cottam Hydro System and Chairman of the Board of Trustees of that village, died recently in Metropolitan Hospital, Windsor.

Mr. Poulter resided in the Kingsville area from 1920 to 1928, and served for six years as Reeve and as a member of Essex County Council. He was also Justice of the Peace for the Kingsville District. When the Liquor Control Board of Ontario was formed, he was appointed an inspector and was responsible for the board's supervision in most of Western Ontario.

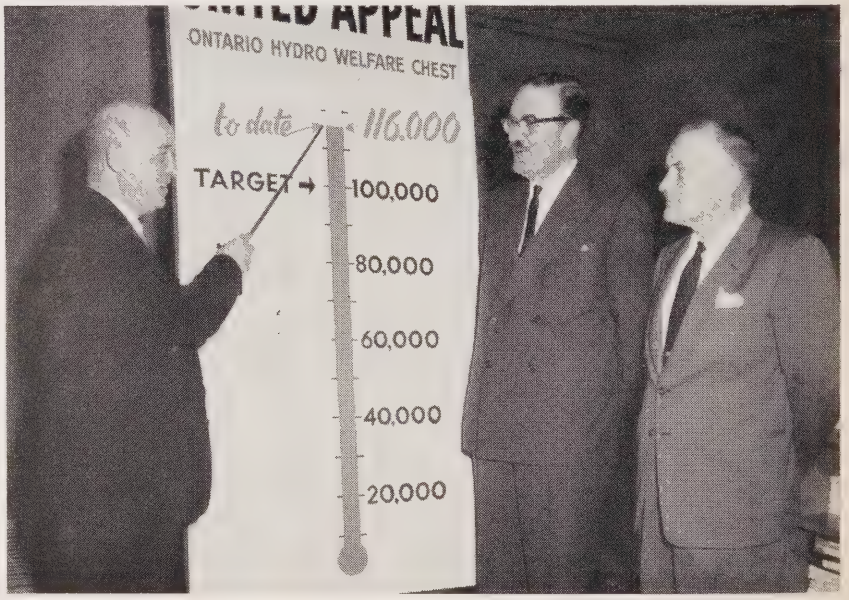
In 1948 he retired, and took up residence at Cottam where he participated actively in community life. The deceased served as Secretary-Treasurer of the school board, Chairman of the Board of Trustees, which administers the Hydro System. He is survived by his wife, one daughter, two sons, as well as three sisters and two brothers.



WM. POULTER

Guelph Reorganizes Executive Staff

A familiar Guelph landmark, the gas plant, which has served city customers for 86 years, has been demolished and equipment removed from the site, leaving only memories and vacant land. Distribution of manufactured gas started in Guelph in 1871. Since 1907 the Guelph Board of Light and Heat Commissioners has operated the city's electric and gas facilities. Due to obsolescence and the excessive cost involved in rebuilding the plant, the local utility discontinued gas service in December, 1957, and sold the distribution system and franchise to a private firm. This has resulted in a reorganization of the executive staff under W. J. Bishop, who remains as General Manager and Secretary-Treasurer. A. G. Stacey now holds the position of Assistant General Manager and Chief Engineer, while E. W. Dunlap is Assistant Engineer and Electrical Superintendent and J. G. Gow is Accountant and Billing Supervisor.



OVER THE TOP

Ontario Hydro employees were among the leaders in employee contributions to the United Appeal for Metropolitan Toronto. The Commission's target of $100,000 has been exceeded by $17,781. C. F. Harrington, Chairman of the United Appeal Campaign in Metropolitan Toronto, recently visited the Commission's Head Office to extend his congratulations when contributions reached $116,000. Shown in this picture, from left to right, are T. S. McFadyen, Hydro member of the Loaned Executive Group of the United Appeal; Mr. Harrington and A. W. Manby, General Manager of Ontario Hydro.



HONOR A. W. MURDOCK

WELL-KNOWN in the field of municipal Hydro administration, A. W. Murdock, Ontario Hydro's Rate Study Engineer, was guest of honor at a recent complimentary dinner marking his retirement after 39 years' service with the Commission. R. O. Standing, the Commission's Senior Maintenance Officer, Operations, was also honored during the dinner attended by some 200 Ontario Hydro and municipal utility colleagues from many sections of the province. Mr. Standing retired recently with 36 years' service to his credit.

In presenting a television set to Mr. Murdock, as shown in the accompanying photo, Hydro's First Vice-Chairman W. Ross Strike said: "Alf is an authority on rates in this province whose advice has been sought many times by other groups. It is a tribute to him that the establishment of the four-block domestic rate structure has come to fruition before his retirement."

As an engineer with the Commission's Municipal Department (predecessor of the present Consumer Service Division) from 1919 to 1947, Mr. Murdock made a major contribution to the expansion of the municipal and rural systems, particularly in the Georgian Bay area. From 1947 to 1952 he was Assistant Manager, Personnel Branch.

In his capacity as Rate Study Engineer, Mr. Murdock was charged with the responsibility of revising and modernizing municipal rate structures to meet changing conditions. This entailed close collaboration with the municipal utilities through the A.M.E.U. Rates Committee and resulted in many revisions of the Standard Interpretation of Rates, the utilities' rule book governing the application of rates. To date, new residential rate structures have been adopted by 145 associated municipal electrical utilities.

Former Dietitian Passes

Former dietitian and lecturer for the Toronto Hydro-Electric System, Miss Margaret Amelia Stewart died recently.

Kitchener Launches Expansion Program

Kitchener P.U.C. has launched a $1,495,000 expansion and improvement program this year. The largest single item, is the expansion of the electrical distribution facilities, at an estimated cost of $560,000 while $140,000 will be spent on a street lighting program.

Other large expenditures include $300,000 for a new stores and garage building, $60,000 for alterations to the engineering and administration building, and $115,000 for the purchase of the gas department warehouse for the electrical department.

ONTARIO HYDRO TROPHY

THE name of Osnabruck High School in the new community of Ingleside is the first to be inscribed on the Ontario Hydro St. Lawrence Power Project Area High School Trophy. Teams representing five schools in the St. Lawrence area competed in the first annual track and field meet at the Iroquois High School grounds recently, Osnabruck emerging with the highest aggregate score.

The picture shows Gordon Mitchell, Ontario Hydro's St. Lawrence Power Project Director (right), presenting the Commission's trophy to the captain of the winning team, Linden Wells. On the left is J. C. Schultz, Principal of Osnabruck High School.





Renfrew has been celebrating the 100th anniversary of its founding this year, and among the festivities held to commemorate the event was a monster parade, including a float sponsored by Renfrew Hydro-Electric Commission. Members of the Renfrew Hydro staff, together with several employees' children, entered into the spirit of the event as will be noted in the photograph above of five staff members in costumes reminiscent of former years. The group includes, left to right: Miss Marie Deyell, Arthur Toner, Miss Shirley Rodgers, Ross Young and Mrs. Lillian Walker.

Another Ontario community, Durham, also observed its centenary. One highlight has been the "whiskerino" contest in which several male members of Durham P.U.C. staff, and Reeve Harry Kress were enthusiastic participants. Secretary-Treasurer William R. McDonald,



pictured on the right, was among the 100 contestants and proudly displayed his aspiring beard to a local photographer. ■

St. Clair Beach Adopts New Rate Schedule

St. Clair Beach Hydro-Electric Commission has announced adoption of the four-block system of billing for domestic customers. The new rates, which will mean a 10 per cent decrease in total revenue from domestic customers and an overall decrease of approximately 12 per cent, were apparent in the bills mailed during November this year. Commercial and power rates have also been reduced.

ELECTRIC HEATING FORUMS

(Continued from page 27)

the future. He said that the company is now setting its sights on the mass, new-home market, although most of its present customers have been converted to electricity from other forms of heating. Next year, some 100 model homes will be equipped throughout the Detroit area, Mr. Dwyer said. It is also expected that at least four all-electric subdivisions will be built. He estimated that one domestic electric space heating installation is approximately equal to four water heaters in energy consumption. Considering the similarity in climate and the more favorable rates prevailing in Ontario, Mr. Dwyer predicted that electric space heating will take on considerable significance in this province in the years immediately ahead.

Following the guest speaker's remarks, the Western Region's new Space Heating Supervisor, W. L. Scott, undertook to answer a barrage of questions concerning the status of this form of heating in Ontario. He pointed out that the new rate of 1.5c per kilowatt-hour for home heating applied only in rural areas served directly by Ontario Hydro. It is anticipated, however, that most municipal utilities will offer very similar rates, and that they will not lack for customers. He urged electrical contractors and those concerned with insulation to prepare at once for their important new responsibilities.

— by Donald Wright.

Guelph Rebuilds Local Substations

Guelph Board of Light and Heat Commissioners is completing a $65,000 program of rebuilding two local substations. Equipment considered obsolete is being replaced with the up-to-date facilities, while capacity has been doubled at one station and increased by 20 per cent at another.

Acton Purchases Substations

Acton P.U.C. proposes to undertake capital expenditures to the end of 1959, totalling $42,160. Included in these expenditures is an amount of $17,160 for the purchase of the Acton Distributing Station from Ontario Hydro with a resultant saving in the utility's cost of power.

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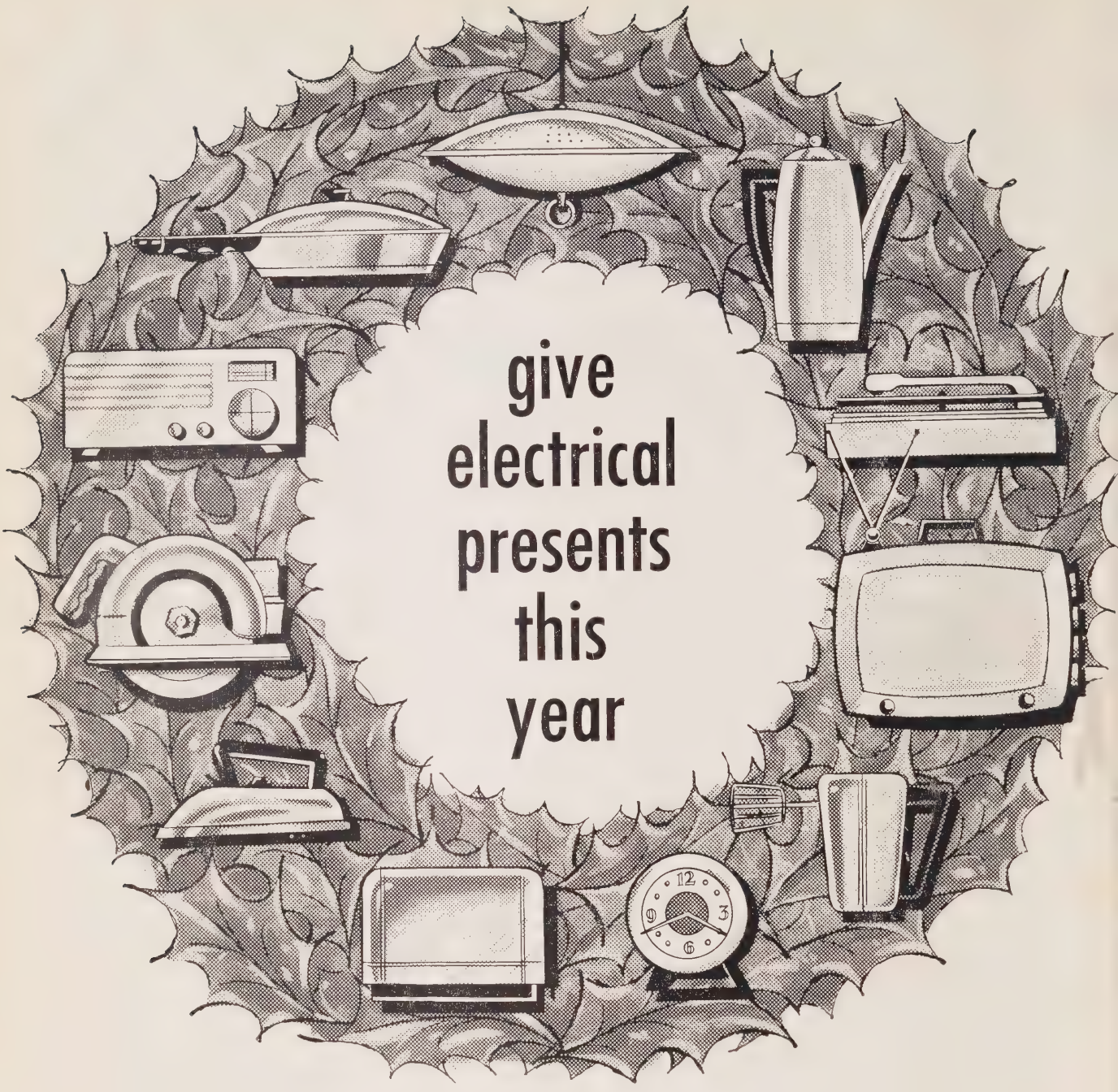
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29	30	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..



You'll always be remembered when you give electrical presents because they bring lasting service and pleasure. With so many wonderful new electric appliances to choose from you'll have no trouble at all pleasing everyone on your Christmas list. Modern electric appliances are handsomely styled for today's carefree living. They're easy to use and cost so little to operate.

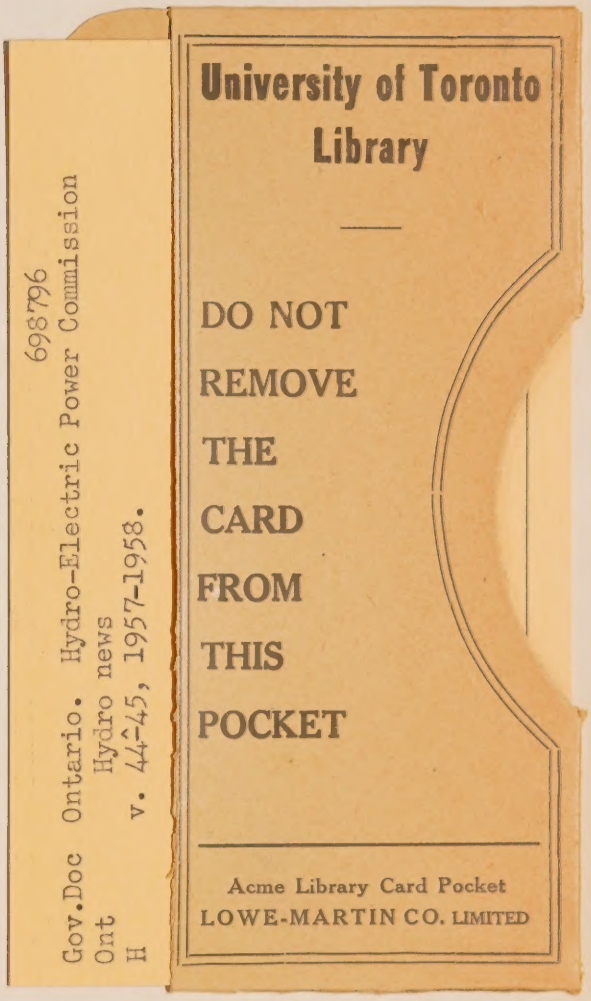
There are no finer or more thoughtful gifts to help your family and friends "live better electrically" — the safe, clean, modern way.

ONTARIO HYDRO

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

ELECTRICITY DOES SO MUCH . . . COSTS SO LITTLE

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